Full Circle Magazine

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AUTOMATE THE BORING STUFF WITH PYTHON
TEACH YOUR KIDS TO CODE
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REPLACE YOUR BROKEN TRUECRYPT
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Issue #98

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Welcome to another issue of Full Circle.

Sorry folks, no Python again this month I'm afraid, but we do have a lot of other programming stuff for you. Elmer discusses Macros as Functions in this month's LibreOffice (that's programming, isn't it?) and JavaScript trundles on. If you need even more stuff then we have two book reviews; Automate The Boring Stuff With Python, and Teach Your Kids To Code.

My Ubuntu Phones section lists the latest updates and fixes to the Ubuntu Phone OS, and a quick mention of the next BQ Ubuntu Phone, the Aquaris E5 HD.

If games are your thing then Oscar looks at games that are free-to-play, and I take a look at Minetest. It looks almost identical to Minecraft, but is entirely free, and open source. Dick Thomas has supplied a review of his rather fancy Saitek Yoke system. Honestly, if he buys any more X-Plane hardware he'll have a whole cockpit in his house. Seriously!

If you've taken a look at the FCM site recently you'll have seen a post about Patreon. With our admin AWOL Lucas is helping move and rebuild the site to new hosting, so I'm having to bear the brunt of paying for the FCM site and domain name. Something I never did before. Hence, the reason for creating a Patreon page. To ask for some help in paying for the site. Fear not, FCM will continue no matter what. I've also added a PayPal button for those who just want to give a one-off donation.

All the best, and keep in touch!

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NEWS

Gorgeous Ubuntu-Based Mangaka Linux for Anime and Manga Fans Enters Beta

Animesoft International has released earlier today the second milestone towards Mangaka Nyu, a free and GPL licensed Ubuntu and Debian-based operating system designed especially for anime and manga communities from all over the world.

"Maintaining the focus to a fast, beauty, complete and very customizable desktop, now with full support to Japanese language, bugfix in the whole system and software updates, we are proud to introduce you to the BETA release of our system," says Animesoft International.

The distribution comes with professional free software pre-installed for fansubbing, fandubbing, 2D graphical creations, multimedia playback and web browsing. Users will have a complete desktop experience thanks to the built-in codecs, Java, and Flash support.

Source: http://linux.softpedia.com/blog/Gorgeous-Ubuntu-Based-Mangaka-Linux-for-Anime-and-Manga-Fans-Enters-Beta-483540.shtml
Submitted by: **Arnfried Walbrecht**

9-dollar computer tops two million on Kickstarter

Raspberry Pi has new competition in the ultra-budget computer universe. CHIP purports to be the world's first $9 computer and its run on Kickstarter is coming to a close after raising over $2 million, more than 40 times its crowdfunding goal from nearly 40,000 backers.

CHIP easily fits in your palm and packs a 1GHz processor, 512 MB RAM and 4 GB of storage with Linux loaded and ready to roll. It has built in WiFi, Bluetooth and a composite video port; VGA and HDMI adapters can also be added. LibreOffice and the Chromium browser allow for instant web browsing and productivity – just about as quickly as you can get the system connected to a display and means of input.

The key to CHIP's low price is a partnership with China's Allwinner Technology, a chipmaker that has been particularly popular for open-source and budget projects, to drive down component prices through bulk ordering tens of thousands of chips at a time. Given the resounding success of the crowdfunding campaign, it looks like the CHIP team will be able to place those bulk orders.

Source: http://www.gizmag.com/chip-9-computer-linux-kickstarter-raspberry-pi-killer/37474/
Submitted by: **Arnfried Walbrecht**

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openSUSE Linux-Powered Educational Pilot Program to Become Nationwide in Indonesia

Dubbed Information and Communication Technology (ICT) Utilization for Educational Quality Enhancement in Yogyakarta Province, the pilot project promises to enhance the computer usage knowledge of numerous Indonesian students, as it is set to become a nationwide educational program.

Mr. Mohammad Edwin Zakaria, a Linux and IT consultant for the Indonesian pilot program, is extremely confident that the project will become a model of ICT utilization in Indonesia's educational sector. "More and more education people and officials come to Yogyakarta to learn about how to implement information technology in basic education," reveals Mr. Zakaria for the openSUSE Project.

Singgih Raharjo, the department head of Yogyakarta Province's Education Communication and Technology Office, adds that they are also providing a similar program for teachers, instructing them on how to make learning material for students. The program is a real success in Indonesia, and students have access to numerous materials created by teachers.

Source: http://news.softpedia.com/news/openSUSE-Linux-Powered-Educational-Pilot-Program-to-Become-Nationwide-in-Indonesia-482649.shtml
Submitted by: **Arnfried Walbrecht**

Run the Kali Linux Penetration Testing Distro on Any Platform via Docker Images

With the official Kali Linux Docker images, which include a minimal Kali Linux 1.1.0a base, you can easily run the best penetration testing distribution on almost any platform, including Mac OS X, SUSE, Gentoo, CentOS, RackSpace, and Azure.

Docker is a revolutionary, open-source software solution that lets system administrators and application developers package, distribute and run apps in virtual containers, anywhere, without too much of a hassle.

To get started, you will need to install the latest version of the Docker software on your operating system of choice. Once Docker is successfully installed and configured, you can use the following commands to fetch the Kali Linux images from the Docker repository and run the penetration testing distro...

Source: http://news.softpedia.com/news/Run-the-Kali-Linux-Penetration-Testing-Distro-on-Any-Platform-via-Docker-Images-482656.shtml
Submitted by: **Arnfried Walbrecht**

Ubuntu-Based REMnux 6.0 Linux Distro for Malware Analysis Officially Released

According to the release notes, REMnux 6.0 Linux is here to update almost all of its great software collection of tools that help you analyze malware, and introduces various new and useful utilities that will elevate the distribution to a whole new level.

Among the new tools that have been added in REMnux 6.0, we can mention pedump, readpe.py, virustotal-tools, Nginx, VolDiff, Rule Editor, Rekall, m2elf, Yara Rules, OfficeDissector MASTIFF plugins, Docker, AndroGuard, vtTool, oletools, libolecf, tcpflow, passive.py, CapTipper, oledump, CFR, and update-remnux.

"I'm excited to announce the v6 release of the REMnux distro, which helps analysts examine malware using free utilities in a Linux environment. REMnux v6 updates the tools that were present in the earlier revisions of the

distro and introduces several new ones. Moreover, it implements major architectural changes behind the scenes to allow REMnux users to easily apply future updates without having to download the full REMnux environment from scratch."

Source: http://news.softpedia.com/news/Ubuntu-Based-REMnux-6-0-Linux-Distro-for-Malware-Analysis-Officially-Released-483709.shtml
Submitted by: **Arnfried Walbrecht**

Pragmatism in the History of GNU, Linux and Free/ Open Source Software

If you ask a lot of people why Linus Torvalds, and the Linux kernel that he wrote, became one of the most prominent open source projects of all time, while Richard Stallman's GNU project has received much less attention beyond hacker circles, they'll tell you the difference has to do with Stallman's excessive commitment to an uncompromising ideology. Is that really accurate?

Below, I'd like to make the case for a more nuanced interpretation of Stallman and the Free Software Foundation – which were more pragmatic than many observers have appreciated.

First, let's take a look at what people have said about Stallman, and the GNU project that he started in 1984. (He launched the Free Software Foundation a year later.) Here's what Torvalds wrote about Stallman in his 2001 autobiography: “The thing that drives me crazy about Richard is that he sees everything in black and white. And that creates unnecessary political divisions. He never understands the viewpoint of anybody else. If he were into religion, you would call him a religious fanatic.”

Source: http://thevarguy.com/open-source-application-software-companies/060915/pragmatism-history-gnu-linux-and-freeopen-source-software
Submitted by: **Arnfried Walbrecht**

Apple's Decision to Open Source Swift Met with Developer Applause

Apple this week made an announcement worthy of applause and, indeed, the news received the loudest applause of opening day at WWDC. The company said it will open source its programming language Swift, and allow developers to compile programs on Linux.

This is a smart move for Apple and a big win for the developer community. Apple has long valued developers, but this week adopted a key strategy that has become the de facto approach to programming languages: open source.

Source: http://www.linux.com/news/featured-blogs/158-jim-zemlin/834610-apples-decision-to-open-source-swift-met-with-developer-applause
Submitted by: **Jim Zemlin**

BQ Aquaris E5 HD Ubuntu Edition Is Now Available for Sale

The latest Aquaris E5 HD Ubuntu Edition from the Spanish company BQ is now available for purchase on the official website. This latest Ubuntu phone was announced just a couple of weeks ago and it's finally here.

BQ has been quick to release yet another Ubuntu phone after the previous e4.5 Aquaris Edition, which proved to be a very successful model. The first flash sales went very well, and it looks like a lot of people have ordered this

particular model. Now the company is looking to expand its grip on the Ubuntu market, at least in Europe, with a new slightly improved model that comes with a bigger screen and a better camera.

If you were hoping to get your BQ Aquaris E5 HD Ubuntu Edition in your mail soon, you will probably be a little bit disappointed because it might take a while until shipping starts. In any case, you can now preorder it.

Source: http://news.softpedia.com/news/BQ-Aquaris-E5-HD-Ubuntu-Edition-Is-Now-Available-for-Sale-483773.shtml
Submitted by: **Silviu Stahie**

Announcing Apache: Big Data and ApacheCon: Core

A year and a half ago, we forged a partnership with the Apache Software Foundation to become the producer of their official ASF events. The ASF has long blazed a trail of innovation in open source, and our work with them has yielded results in successful developer collaboration and events. It's been a great partnership, in our opinion, led on our side by my colleague Angela Brown.

After extensive research and discussions with the Apache Software Foundation community, ApacheCon will now consist of two co-located events, called Apache: Big Data, and ApacheCon: Core. Starting this autumn in Budapest, we will now offer Apache: Big Data alongside ApacheCon: Core. Apache: Big Data will focus on Apache's wide range of Big Data-focused projects, including Bigtop, Crunch, Falcon, Flink, Hadoop, Kafka, Parquet, Phoenix, Samza, Spark, Storm, Tajo, and more.

Source: http://www.linux.com/news/featured-blogs/167-amanda-mcpherson/834560-announcing-apache-big-data-

and-apachecon-core
Submitted by: **Amanda McPherson**

System76 Unveils the Fastest and Most Powerful Ubuntu Laptop on the Planet

System76 is a hardware company well known for producing unique laptops powered by the world's most popular free operating system, Ubuntu Linux, and it has just unveiled a new product called Serval WS.

System76's Serval WS laptop has been declared by the renowned company as the most powerful and fastest Ubuntu laptop on the market – a pinnacle of performance, as the hardware manufacturer writes on the project's web page. Enclosed in an exceptionally high-quality finish, the Serval WS laptop is as powerful as a dedicated gaming workstation, offering users an experience that cannot be found in other existing similar products.

Source: http://news.softpedia.com/news/System76-Unveils-the-Fastest-and-Most-Powerful-Ubuntu-Laptop-on-the-Planet-483840.shtml
Submitted by: **Marius Nestor**

Four New Linux Kernel Vulnerabilities Patched in Ubuntu 14.10 (Utopic Unicorn)

After having informed users about the immediate availability of a new kernel update for the Ubuntu 14.04 LTS (Trusty Tahr) operating system, Canonical has also announced that Ubuntu 14.10 (Utopic Unicorn) received an important kernel update.

The new kernel update patches four security issues (CVE-2015-2150, CVE-2015-2666,CVE-2015-2830, and CVE-2015-2922) that were discovered in the upstream

Linux 3.16 kernel packages by various developers, and are used in both Ubuntu 14.10 and Ubuntu 14.04.2 LTS operating systems.

Source: http://news.softpedia.com/news/Four-New-Linux-Kernel-Vulnerabilities-Patched-in-Ubuntu-14-10-Utopic-Unicorn-483730.shtml
Submitted by: **Marius Nestor**

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3 Financial Companies Innovating With Open Source

The financial industry is on the verge of an open source breakthrough, say three companies on the cutting edge of the trend. Traditionally very secretive about their technology, banks, hedge funds and other financial services companies have begun in the past few years to talk about how they use open source software in their infrastructure and product development. They have also been steadily increasing their contributions to upstream projects in the form of user feedback and code. And some companies have initiated their own open source projects or released portions of their own code to the open source community.

Though many financial institutions have the same basic infrastructure requirements – largely based on Linux – they've long employed their own engineering teams to build these systems from the ground up, and at great expense. But stricter regulations on the finance industry after the 2007/08 financial crisis have caused IT departments to tighten their belts. So IT managers are starting to leverage open source tools and components to cut down on custom development costs and maintenance overhead.

This trend is most evident in the adoption of open source automation tools as institutions move to the cloud, says

Vinod Kutty, senior director at CME Group. Enterprises are now looking to big web companies such as Google, Amazon Web Services, and Facebook, as the model for their own cloud migration – adopting the same open source tools for devops and continuous integration such as Puppet, Chef, and Ansible.

Source: http://www.linux.com/news/featured-blogs/200-libby-clark/833979-3-financial-companies-innovating-with-open-source
Submitted by: **Libby Clark**

Protect your data with these five Linux encryption tools

If you think data is more precious than ever, you should certainly consider its security to be a priority. And with more and more businesses working with multiple platforms, you have to be prepared to work with encryption on just about every business-ready operating system available. Including Linux. Fortunately, you have plenty of encryption-ready tools to choose from.

But which tools should you be looking at? If you open up, say, the Ubuntu Software Center, you'll find the majority of tools available (under the "encryption" search results) to be nothing more than libraries to resolve dependencies. Dig a bit deeper, though, and you'll find everything you need for easy-to-use encryption. I've uncovered five such tools for encryption on the Linux platform.

Source: http://www.techrepublic.com/blog/five-apps/protect-your-data-with-these-five-linux-encryption-tools/
Submitted by: **Arnfried Walbrecht**

SC Congress: Use Linux to fight malware, and let

business learn security-speak

When worried about the vulnerability of workstations used by several thousand IBM system administrators who had access to clients' production systems, about four years ago the company took away their Windows computers and put them all on Linux PCs.

Those who needed Windows could run it in a KVM virtual environment. In addition, the admins were told that no personal browsing or email could be done on the Linux platform.

It was, admitted IBM CISO Koos Lodewijkx, a "very unpopular" decision, but it "significantly reduced malware infection rates" on those users' machines.

"For long, we had been permissive," he said, encouraging people to experiment with computing. But, he added, there's a lot less Linux malware. Plus, if the work environment was infected, as a virtual machine the image could quickly be replaced.

Senior leadership realized how important this was, he said, if a client's system was infected and this approach cleared it.

How was it sold to staff? "You don't want to force it down the users' throats," wondered one audience member. "We did," Lodewijkx replied.

"We told them how critical their role is for the survival of our company and our clients." Most accepted that.

Source: http://www.itworldcanada.com/article/sc-congress-use-linux-to-fight-malware-and-let-business-learn-security-speak/375337
Submitted by: **Arnfried Walbrecht**

Linux servers up, thin clients decline

The EMEA server market has continued its positive year-on-year growth, according to analyst IDC.

The EMEA market witnessed a year-on-year growth of 3.5 per cent in Q1 2015, reporting £3 billion in vendor revenue.

In particular, Linux has seen solid growth with a 15.9 per cent year-on-year increase in shipments in Q1 2015.

Eckhardt Fischer, research analyst of European infrastructure at IDC, said: "Linux continues to make positive strides in Western Europe, and its reported 15.9 per cent year-on-year growth in Q1 2015 can be attributed to higher levels of attraction seen by this OS in cloud, HPC, and Big Data scenarios."

The EMEA server market also reported a year-on-year revenue growth of 29.2 per cent in Q1 2015, but due to a weakening euro, some vendors have been forced to adopt new pricing structures.

IDC revealed that HP took the top spot in Q1, with a server revenue of $1.08 billion (£701 million), while Dell came in second place with revenue reaching $534 million (£345 million).

Source: http://www.pcr-online.biz/news/read/linux-servers-up-as-thin-clients-decline/036373
Submitted by: **Arnfried Walbrecht**

Canonical Patches Linux Kernel Vulnerability in All Supported Ubuntu OSes

Canonical has published a new security notice for all of its supported Ubuntu Linux operating systems, informing

users that a Linux kernel vulnerability has been patched, and urging them to update their systems as soon as possible.

The security issue, discovered by Philip Pettersson in Linux kernel's OverlayFS filesystem, affects the Ubuntu 15.04 (Vivid Vervet), Ubuntu 14.10 (Utopic Unicorn), Ubuntu 14.04 LTS (Trusty Tahr), and Ubuntu 12.04 LTS (Precise Pangolin) operating systems, as well as their derivatives.

At the moment, all the Ubuntu OSes mentioned above are vulnerable to this security flaw, as a local user could exploit it easily and obtain administrative privileges to run programs as a system administrator. More details can be found by accessing CVE-2015-1328.

"Philip Pettersson discovered a privilege escalation when using overlayfs mounts inside of user namespaces. A local user could exploit this flaw to gain administrative privileges on the system," reads the Ubuntu Security Notice posted by Canonical on June 15, 2015.

Source: http://news.softpedia.com/news/Canonical-Patches-Linux-Kernel-Vulnerability-in-All-Supported-Ubuntu-OSes-484412.shtml
Submitted by: **Arnfried Walbrecht**

The Creator of Linux on the Future Without Him

It’s a morbid but important discussion. Torvalds released the Linux operating system from his college dorm room in Finland in 1991. Since then, the software has taken over the world. Huge swaths of the Internet—including the servers of Google, Amazon.com, and Facebook—run on Linux. More than a billion Android smartphones and tablets run on Linux, as do billions upon billions of

everything from appliances and medical devices right on up to cars and rockets. While Linux is open-source, which allows people to change it as they please, Torvalds remains the lone official arbiter of the software, guiding how Linux evolves. When it comes to the software that runs just about everything, Torvalds is The Decider.

What's more, Torvalds may be the most influential individual economic force of the past 20 years. He didn't invent open-source software, but, through Linux, he unleashed the full power of the idea. Torvalds has proven that open-source software can be quicker to build, better, and more popular, than proprietary products. The result of all this is that open-source software has overtaken proprietary code as the standard for new products, and the price of software overall has plummeted. Torvalds has, in effect, been as instrumental in retooling the production lines of the modern economy as Henry Ford was 100 years earlier.

Source: http://www.bloomberg.com/news/articles/2015-06-16/the-creator-of-linux-on-the-future-without-him
Submitted by: **Arnfried Walbrecht**

Black Lab Linux GNOME 2015.6 Is Still Based on Ubuntu 14.04 LTS, Supported Until 2020

Probably the most important change in this release is the new versioning scheme. Softpedia was informed by Mr. Dohnert a few weeks ago that upcoming releases of the Black Lab Linux distributions would drop the regular 6.x or 7.x version numbers in favor of a new scheme composed of the current year and month, which tends to become more popular among software distributors. Powered by Ubuntu 14.04 LTS' Linux kernel 3.16.0-40, Black Lab Linux GNOME 2015.6 comes with the GNOME

3.10.4 desktop environment, GCC 4.9.2, Mozilla Firefox 38.0, Mozilla Thunderbird 31.7 with the Lightning add-on, Abiword 3.0, Gnumeric 1.12, Steam for Linux, Shotwell, Pinta, as well as Ubuntu-compatible Linux kernel 3.13.0-53 packages.

"We have set it up with a unique layout which makes it ideal for traditional keyboard and mouse desktop users as well as users with touchscreen systems," says Robert Dohnert on behalf of the Black Lab Software. "This release is 64 bit only although we are considering a 32 bit release if the community requests it. This release is fully supported until the year 2020 as our other releases."

Source: http://news.softpedia.com/news/Black-Lab-Linux-GNOME-2015-6-Is-Still-Based-on-Ubuntu-14-04-LTS-Supported-Until-2020-484520.shtml
Submitted by: **Arnfried Walbrecht**

Command & Conquer
Reveal.JS

by Lucas Westerman

In the course of the last month, I was tasked with creating a presentation on a web design project, including various external websites and tools. This left me with various options - Google Slides, LibreOffice, LaTeX Beamer, or any other typical presentation software. However, as I wanted to display some live views of websites, I looked for modern software that would allow this - and discovered Reveal.JS. This is a JavaScript presentation framework - it is written in HTML, and as such supports iFrame (and various other pre-built options for displaying media content). After using it, and finding the result to be exactly what I wanted, I felt sharing this knowledge in this month's article would be ideal.

Can I use this without HTML knowledge?

Technically, the format for Reveal.JS is purely HTML. However, copying the sections from the demo file, and adjusting it for your needs, is sufficient. If you prefer a GUI way, there is a "visual editor" called Slides. Slides offers 3 tiers of pricing, the first of which is free. Depending on your needs, the free option may be sufficient. In any case, my recommendation is always to learn something the "hard way" (read: the code, or the command-line), and then fall back to helpers, IDEs, or visual editors once you understand how everything works, which is why I'll focus on the manual method.

Getting started

Technically, besides forking the git repository, there is

nothing further you need to do. However, some features (external markdown, speaker notes) require it to be running on a server (which is included). Those instructions are as follows:

1. Install Node.js (sudo apt-get install nodejs)
2. Install Grunt (sudo npm install -g grunt-cli)
3. Clone repository
   git clone https://github.com/hakimel/reveal.js.git
4. cd reveal.js
5. npm install (installs all dependencies outlined in the package.json file)
6. grunt serve (executes the grunt task “serve”, which is the server)
7. Visit http://localhost:8000 to see the presentation.

Viewing the presentation

As you can see, the github repository contains a working demo presentation, showing the various options. I would recommend browsing through the demo, in order to decide what animations/transitions/techniques you like.

Creating your own presentation

This can be done one of two ways - write an index.html file by hand following the formatting in the demo file, or simply take the existing index.html (or a copy of it), and adjust it for your needs. The key is to check the syntax of the slides you want to emulate/adjust. For example - to make vertical slides, the <section></section> must be within a <section></section>.

Here is a quick list of things to keep in mind:

1. the outermost parent must be a
2. The second-level parent must be <div

class="slides">
3. Each slide is a <section></section> (vertical slides are nested)
4. Wrap all non-header, non-list text in paragraph tags ( ).
5. Notes (for the presenter view) must be in an <aside class="notes"></aside> within the <section></section> (slide) they belong to.

Depending on how much functionality you've integrated into your presentation, you can then adjust the dependencies array in the <script></script> tags. This is also where any settings can be configured. For a full list of settings, see the github repository. Also remember: exporting to PDF is supported only on Chrome (and, most likely, Chromium). If you don't want to integrate a link, simply opening the page with the following url will load the correct print stylesheets, so you can print the page, and save it to PDF: http://localhost:8000/?print-pdf

Hopefully this article will be helpful to some - especially those who love to use exciting new tools for run-of-the-mill tasks. If you have any questions, issues, or requests, please let me know at lswest34+fcm@gmail.com. As always, I'm also open to requests for future articles.

Further Reading

http://lab.hakim.se/reveal-js/#/ - Reveal.JS homepage
http://slides.com/ - Visual editor

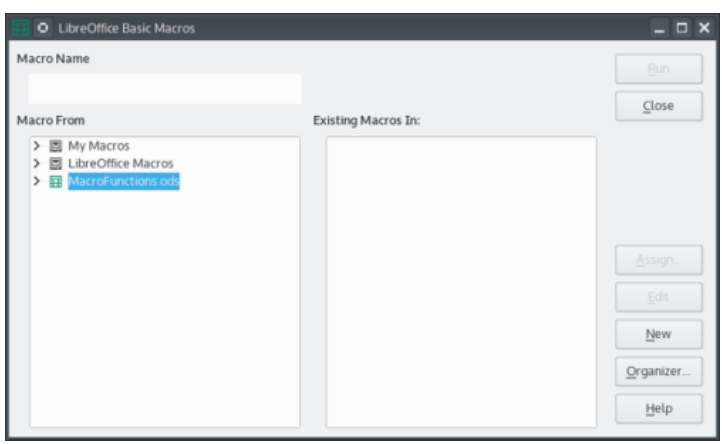
LibreOffice Part 50
Macros as Functions

by Elmer Perry

LibreOffice Calc has hundreds of built-in functions. They cover mathematics, including geometry, trigonometry, and calculus; logical functions; cell functions; and text functions. After years of using Calc, I haven't had a need I couldn't solve or a formula I couldn't recreate using the functions in Calc.

However, I am aware that the day may come when I will need a highly specialized function, a function that does something that the built-in functions can't, or calculates an extremely complicated formula. Luckily, Calc allows you to use macros as functions. You can create your own functions and call them from within a cell's formula. You can even pass the values of cells or even cell ranges to your functions.

Create User-Defined Functions



In order to create user defined functions, you first need a

module for storing the macros. Create a new Calc file and save it as MacroFunctions.ods. Open the LibreOffice Basic Macros dialog: Tools > Macros > Organize Macros > LibreOffice Basic. In the Macro From list box, select the name of your file, MacroFunctions.ods. Click New. In the New Module dialog, give the module the name UserFunctions and click OK. LibreOffice will open your new module in the LibreOffice Basic IDE. The module automatically defines a blank main subroutine. You can leave it or delete it. The choice is yours. You will not use it in this case. The IDE is a mini programming editor. As a built-in macro editor in an office suite, it's actually pretty good. There are tools for testing and tracking macros, but all that is beyond the scope of today's discussion. In the IDE, you will write your first function. It is very simple. The function just returns the number five.

```
Function NumberFive()
    NumberFive = 5
End Function
```

The first line is the function definition. It begins with the word “Function” showing it as a function rather than a subroutine (Sub). The main difference between a function and subroutine is that a function returns a value. Next is the function name, NumberFive, followed by parentheses. The parentheses are required, even if they are empty. The second line of this function is the body of the function. The body of a function can contain any number of lines. This function simply returns the number 5. We return a value from a function by setting the function name (without the parentheses) equal to the value we want to return. Finally, we have the line “End Function” which denotes the end of the function. Once you have the new function typed in, click the save button.

To use the macro in our spreadsheet, select a cell and type

```
=NumberFive()
```

When you press Enter, the number 5 will appear in the cell where you typed the formula that uses the function name. You can even use the function as part of a bigger formula like

```
=2 + NumberFive() - 3
```

which should give you 4.

Passing Arguments

Having a macro you created and can use in a formula is great. To make a function really useful, you need the ability to send data to the function. You send data by the use of arguments. You can use text, numbers, cell references, and cell ranges as arguments. First, you will create a function which passes a single argument whether a cell reference or a value.

```
Function SqrIt(x)
    If IsNumeric(x) Then
        SqrIt = x * x
    Else
        SqrIt = 0.0
    End If
End Function
```

The signature of your new function is like the first one except it has a variable x in the parentheses. The x represents the value you are passing to the function. In the body of the function, it checks x to make sure it is a number. If it is a number, the function multiplies x by itself and returning the result. If x is not a number, it returns 0.0.

You can use hard-coded numbers as x when you use the function:

```
=SqrIt(3)
=SqrIt(2.4)
```

Or you can reference cells as x:

```
=SqrIt(A1)
=SqrIt(B4)
```

Or as part of a larger formula:

```
=NumberFive() + SqrIt(C4)
```

By default in LibreOffice Basic, arguments are passed by value. When you pass a cell reference to a function, the function does not receive a reference to the actual cell. Instead, the function receives the value of the cell or the result of its formula. If the cell A1 contains the number 3, or a formula that results in 3, the function SqrIt receives the value 3 and not a reference to A1.

Passing Multiple Values

While passing one value to a function is useful, sometimes you need to pass multiple values. For example, you create a function that calculates the volume of a cuboid. A simplistic version of this function is represented by the function Vol.

```
Function Vol(a, b, c)
    If IsNumeric(a) AND IsNumeric(b) AND IsNumeric(c) Then
        Vol = a * b * c
    Else
        Vol = 0.0
    End If
End Function
```

In Vol, you pass the three needed values to calculate the volume of the cuboid. The parentheses contain three variables separated by commas. In the If statement, the

function checks whether each of the variables is a number, and then if they are, it returns the product of the values. Otherwise, it returns 0.0.

We can use this function much as we have the others.

```
=Vol(2, 3, 4)
=Vol(A1, A2, A3)
=Vol(SqrIt(A1), A2, A3)
=SqrIt(Vol(A1, A2, A3))
```

Passing A Cell Range

So far you have passed single-cell references to your functions, but you might want to pass a cell range rather than a single-cell reference. A cell range is passed to Basic functions as an array. An array is a collection of values. Cell ranges come across as multidimensional arrays, i.e. x(Row, Column). You can use a function named IsArray to determine whether the value being passed is an array. The function SumIt demonstrates the use of a cell range reference. SumIt will accept a single value or a cell range. If the argument is a single value, it returns the value. If the argument is a cell range, it sums the values of all the cells in the range.

```
Function SumIt(x)
    Dim TheSum as Double
    Dim iRow as Integer
    Dim iCol as Integer

    TheSum = 0.0

    If IsArray(x) Then
        For iRow = LBound(x, 1) To UBound(x, 1)
            For iCol = LBound(x, 2) To UBound(x, 2)
                TheSum = TheSum + x(iRow, iCol)
            Next
        Next
    Else
        TheSum = x
    End If

    SumIt = TheSum
```

```
End Function
```

The body of the function defines three variables, TheSum, iRow, and iCol. iRow and iCol are defined as Integers, which are whole numbers, i.e. 1, 2, 3. These two variables are the row and column placeholders. TheSum is defined as a Double, which is a real, floating point number, i.e. 2.34, and will contain our running total. TheSum is assigned an initial value of 0.0.

You have only one argument in your function definition, x. The user could send a single value, single cell reference, or a cell range. The function tests for this using an If statement. It uses the IsArray function to check if x is an array. If it is, SumIt sets up two loops. The outer loop cycles through the row lower-to-upper values. The inner loop cycles through the column lower-to-upper values. The lower values are obtained through the LBound function, and the upper values are obtained through the UBound function. Both functions take a reference to the array, x, and the dimension of the array, 1 or 2. Remember, it references the values through x(row, column). The row is the first level, and the column is the second level. In the middle of the two loops, SumIt takes the current sum, TheSum, and adds the value of the current cell in the array to it, x(iRow, iColumn). Once the first row is complete and iColumn has reached its UBound limit, the iRow increases by one, and the inner loop starts over again. This procedure continues until both iRow and iColumn have reached their UBound limits. The two Next statements end the two loops once they reach the UBound limit for their range. The Else statement handles the case when x is not an array but a single value. It sets TheSum equal to the value of the single argument.

Finally, the function returns the value of TheSum.

This function allows you to actually use a cell range as

your argument. You can also use a single value or cell as the argument. You can even use the function as part of a bigger function.

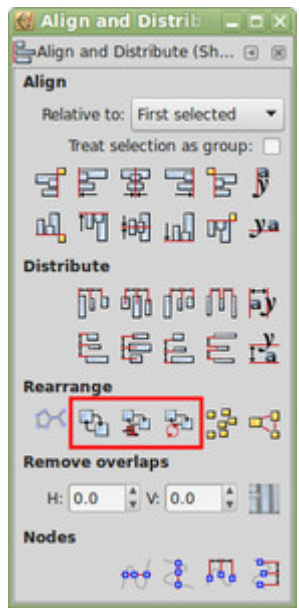
```
=SumIt(A3:C6)
=SumIt(A1)
=SqrIt(SumIt(A1:A5))
```

While Calc provides you with hundreds of functions for manipulating the data in your spreadsheets, you may occasionally need a specialized function that is not easily duplicated using the functions built into Calc. Once you create a function in Basic, you can call it from a cell using a formula. You can design your functions to accept a single value, a cell reference, or a cell range. This allows you to create very versatile functions.

Drawing with Inkscape – Part 38

By Mark Crutch

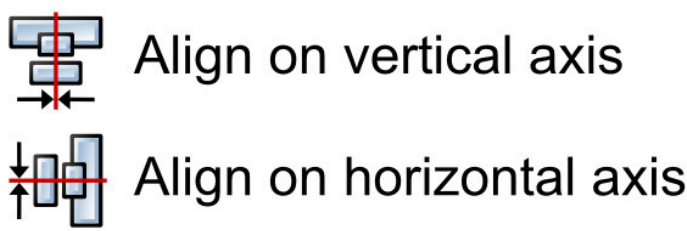
One common requirement when creating vector drawings is to align objects relative to one another. You might want a circle that's centered within a square, or a triangle that touches the top of the page. A related requirement is to distribute several objects evenly, with identical gaps between each of them. These types of arrangements are made easy with Inkscape's Align and Distribute dialog.



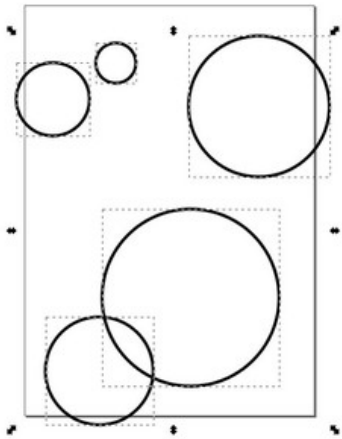
This dialog can be opened via the Object menu, the icon to the right of the main “Commands” toolbar, or by pressing CTRL-SHIFT-A. The screenshot was taken from version 0.91 and has a few minor differences to the 0.48 version that's still in many distributions' repositories: the buttons I've outlined in red are new to 0.91, and a few of the other icons have moved to new positions. For this

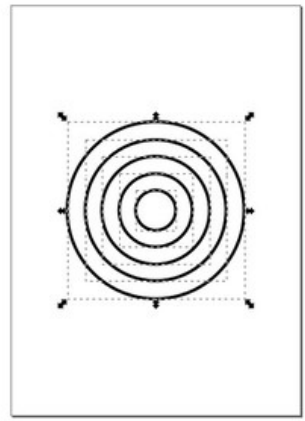
article, I'll be concentrating on the Align section at the top of the dialog, which hasn't significantly changed between versions.

Let's start with an extremely simple alignment task: to center a circle in the middle of a page. Start by drawing a circle anywhere in the workspace – it doesn't even have to be inside the page. Now, with the circle selected, open the Align and Distribute dialog and select “Page” from the “Relative to” pop-up menu. There's no option to center both horizontally and vertically at once, so you have to click the “Center on vertical axis” button first, followed by the “Center on horizontal axis” button afterwards (or vice versa, if you prefer). These buttons can be found, one above the other, in the two rows of icons within the “Align” section of the dialog.

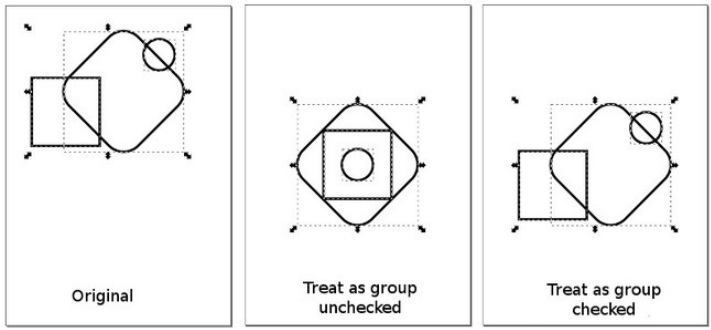


That was pretty straightforward, right? Now create three or four circles of different sizes, each with a stroke but no fill. Select them all and repeat the previous steps. If all went well you should now have a series of concentric circles all centered on the page. This example image shows the “before” and “after” arrangement of some circles that were centered in this way:





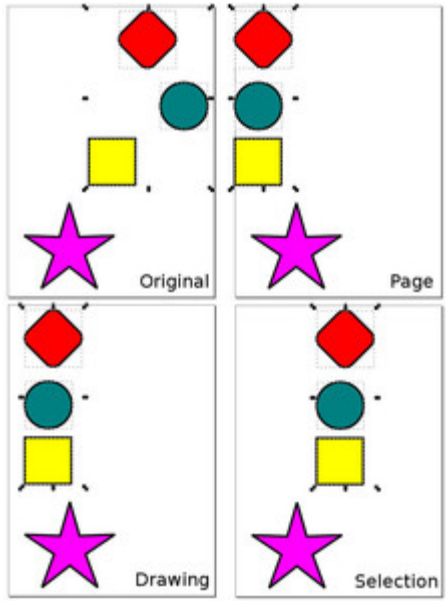
It's important to understand that you can align more than one object at the same time. Usually this reduces the number of steps you need to perform, but sometimes it can be confusing when an inadvertently selected object disappears behind a larger shape that you're trying to align. When dealing with multiple objects, you sometimes want to center the whole arrangement, whilst keeping the individual elements in the same relative positions. One approach is to group them all first: the buttons in the dialog will align the group, but won't descend into it to affect the individual elements. The same effect can be achieved by enabling the “Treat selection as group” checkbox in the dialog before you click on the alignment buttons, saving you the trouble of grouping and then un-grouping your objects.



With “Treat selection as group” unchecked, let's take a look at some other possibilities. On either side of the two centering buttons you'll find buttons for aligning the top, bottom, left or right edges of your objects. In practice, this refers to the edge of the bounding box for the objects – either the visual or the geometric bounding box, depending on how your Inkscape preferences are set. Most of the time this distinction isn't important, but it can drastically alter the results when a filter is applied to your objects and the visual bounding box is in use.

So far, we've only aligned things relative to the page. Using the pop-up menu you can select various other options. For now we'll look at “Drawing” and “Selection Area” (just “Selection” in 0.48). “Drawing” refers to an imaginary bounding box that encompasses everything you've drawn in your image, whether it's inside or outside the page boundary. It stretches from the left edge of the leftmost object in your drawing to the right edge of the rightmost object, and the equivalent in height. “Selection”, on the other hand, just refers to the bounding box that encompasses all of the currently selected objects.

In this example, I've created a few objects and selected all of them except for the purple star. Notice the difference as I use the “Align left edges” button, first with the page, then the drawing and finally the selection.

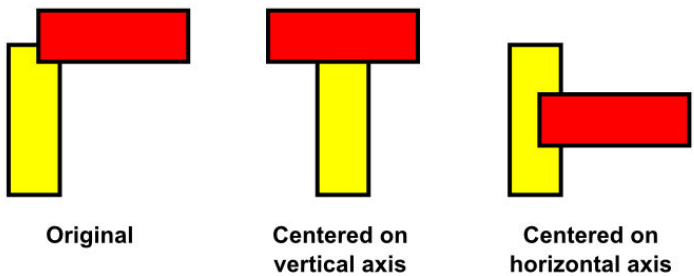


As well as aligning to the page, drawing or selection bounding boxes, objects can also be aligned relative to one another. To do this you need to select at least two objects: one of them will remain anchored in its original position, and all the other objects will be aligned to it. Inkscape offers four options for choosing which of the objects will be anchored: the first object you selected, the last one, the biggest object or the smallest.

Of these choices I recommend using only First Selected and Last Selected. They make it easy to determine what's going to move, and what isn't. When trying to align objects, you've usually got a good idea of the outcome you're trying to achieve, so being able to specify exactly which object is used as the anchor for alignment is more useful than some unclear definition of “bigger” or “smaller”.

For example, suppose you have a rectangle that you duplicate and rotate through 90°. Which of the two is “bigger” and will be used as the anchor? They're both

exactly the same area, but one is wider and the other is taller. The answer depends on what type of alignment you choose: the buttons on the top row, which move the objects horizontally, consider the object with the largest width to be the “biggest”; the buttons on the second row, which move the objects vertically, consider the tallest object to be the “biggest”. In this example the red rectangle is a rotated copy of the yellow one, and the alignment mode was set to “Biggest object” before each of the centering buttons was pressed.



Clearly the use of “Biggest object” and “Smallest object” can cause problems and confusion if multiple objects are the same size, but it can also be misleading when an optical illusion leads you to think that (for example) a dark object is bigger than a similarly sized light object. There's a similar problem when selecting multiple objects at once, then using “First selected” or “Last selected” (Inkscape bases its choice of anchor on the z-index of the items in that case), leading to my rules for aligning objects relative to each other:

1. Use “First selected”.
2. De-select everything (click in the work area, away from any objects – or use Edit > Deselect).
3. Select the object you want to align to (the anchor).
4. Hold shift and drag a rectangle over the objects you want to align.
5. Add or remove individual objects from the selection

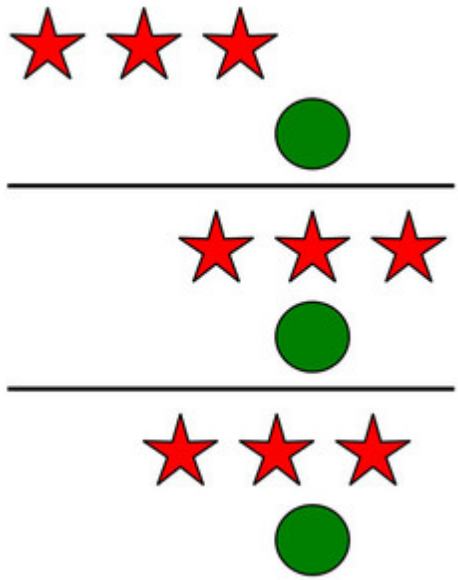
by holding SHIFT as you click on them.
6. Click on one alignment button from the top row and/or one alignment button from the second row to move the objects into place.

With that approach you'll always be in control of which objects are moved, and where they move to. The only variation that I ever use is when the objects I want to move are already selected – especially if it's a complex selection. In that case it's worth using “Last selected” and just holding SHIFT whilst clicking on the anchor object to add it to the selection. If the anchor is already selected, you can SHIFT-click to de-select it, then do the same again to re-select it, thus making it the last selected object.

When using First/Last/Biggest/Smallest you should note that the behaviour of the “Treat selection as group” checkbox changes somewhat – often in a counter-intuitive way. In these modes, the anchor object has to be part of the group, so you might expect it to move along with everything else in order to maintain the relative positions of objects (as we saw when using the Page/Drawing/Selection modes). What actually happens, however, is that the anchor object remains stationary and all the other selected objects move as though they're grouped. In other words it becomes a “treat selection as group, except for the anchor object” checkbox.

Furthermore, the effect of this checkbox changes depending on the layout of your objects. In this example, I've drawn three red stars and one green circle, arranged per the top image. Using “First selected” mode I click on the circle, then hold SHIFT and drag a rectangle over the stars. Ensuring that “Treat selection as group” is checked, a click on the “Center on vertical axis” button should move the stars, keeping the circle in place. Logic might suggest that I'll end up with the second image, but

actually what I get is the third one. What's going on?



It's our old friend the bounding box at play once more. Consider the bounding box of the first image – it's the total width of the stars plus the circle. When centering the selection, it's this bounding box that's used for the calculation, even though the circle won't be moved with the other objects. The result is that the stars are moved so that the center of the original bounding box is centered with the circle, even though doing so results in a smaller bounding box afterwards.

There are two solutions to this dilemma: the most obvious is to group the stars then align the group to the circle with the “Treat selection as group” checkbox un-ticked. This turns a complex arrangement of four objects into a simpler problem involving just two – the circle and the group. It's the approach I used to produce the second image in the example. The other alternative is to click the “Center on vertical axis” button a second time: after the first press, the new bounding box is only as wide as the

stars, so aligning again (with the checkbox enabled) results in the expected behaviour.

With everything you've read so far, you should be able to understand the behaviour of most of the alignment buttons in the dialog, but there are two that defy the rules: the last button on each row is purely used to align text objects.

These buttons align text objects to the vertical or horizontal baseline of other text objects. They ignore any non-text objects in the selection, pay no attention to the state of the “Treat as group” checkbox, and don't even honour the “Relative to” pop-up. If you're using Inkscape for some simple desktop publishing work – perhaps creating a poster or flyer – then they can be used to ensure that different sections of text adhere to the same baseline (the line that runs under the text, ignoring any descenders such as the tail on a “y”). This can give a more professional appearance. An alternative approach is to drag out a guide from the ruler (see part 16), enable

snapping, and activate the “Snap text anchors and baselines” option. Regardless of your method, if you use multi-line text, then it's only the baseline of the first line that is snapped or aligned to, preventing completely separate pieces of text from easily sharing the same “baseline grid” as you might in a proper DTP program such as Scribus.

Perhaps the most important thing to remember about aligning in Inkscape is that, however you align your objects, if you end up with an alignment you're not happy with, simply press CTRL-Z or use Edit > Undo to reverse the action. There's logic to alignment in Inkscape – even if that logic doesn't always produce the outcome you might initially expect.

Mark uses Inkscape to create three webcomics, 'The Greys', 'Monsters, Inked' and 'Elvie', which can all be found at http://www.peppertop.com/

Arduino

by Ronnie Tucker

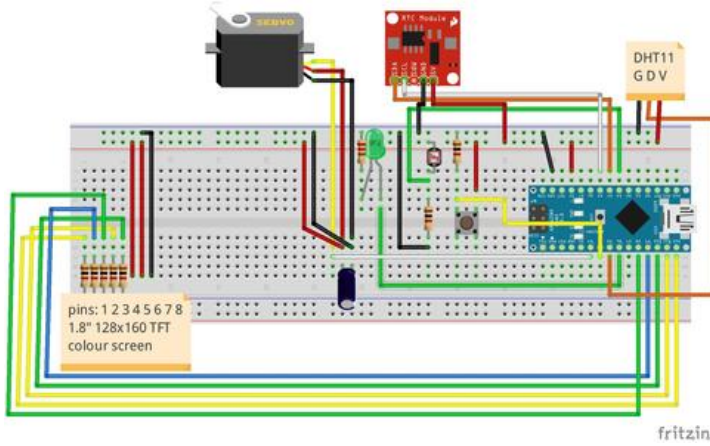
For my latest project, I thought I'd try to create an Arduino-powered automatic chicken feeder.

Initially, I had visions of great things for this, but it ended up being whittled down to something more basic. My initial plan was to have it loaded with sensors, hooked up to the Internet (WiFi/cable), and be able to control the feeder via internet and see the current conditions such as temperature.

Well, that idea died quickly. For one, I was out of WiFi range, so I'd have to use a powerline adapter (if you've never seen/used a powerline adapter, see last month's article on powerline adapters and IP cameras). Easy enough, but then I was running out of power sockets. In the end I dumped the idea of using the Internet, kept the sensors, and have them display on a colour LCD instead.

Basically, here's how it works: at certain times of each day, the servo should turn 90 degrees, thereby letting pellets drop for a short time, then turn back by 90 degrees to block more pellets from dropping. Meanwhile, the screen should show the current temperature, humidity, light level, current time, and time of the next automatic drop. It also has a button for a manual feeding.

Here's the circuit I ended up going with:



We'll get to code next month, but I had many hiccups along the way:

- Time - I was using the DS3231 RTC (real-time clock) which is a great module, but is hellish to set. Initially when you first get it (from your supplier), it will inevitably be set to the wrong time and date. I tried many different things to set mine and just couldn't get it. I ended up using a DS3231 I had used in a previous project, but it was set to -1 hour. So I had to keep adjusting for that in my code.
- Alarm - Thankfully. the time library from the Arduino site comes with an alarm function, so that was a blessing. Otherwise, I'd have to keep checking the time to see if it was time to drop yet, and that would have been a nightmare!
- False Positives - I've no idea why it kept happening, but it suddenly stopped. The servo would randomly trigger and open/close when it shouldn't have been. For some unknown reason it fixed itself.
- Screen Updates - There's still a bit of a 'bug' on my display. The RTC, by default, returns values of single digits for 1 through 9, so when it displays (for example) 3 minutes past, it just displays 3 rather than 03. It means my time display is a bit weird-

looking at times, and I couldn't fix it... because…

- Space - I wanted to use an Arduino Nano. Initially everything was fine, but as I was nearing the end of the project, I was really cutting it fine for space. My current code leaves only 200 bytes of space in the Nano's memory.
- Power - How would I power this thing when it's nowhere near my laptop? Luckily I had an old power adapter that did 12V, 0.9A which would do just fine when wiring it up to the Arduino's VIN pin.

Next month I'll show some of the code and discuss what it does.

Programming JavaScript – Part 3

By Gergo Bogdan

In Part 2, we covered JavaScript Objects and Functions, and introduced the Questions and Solutions section; in this part we are going further and we will do some basic programming on the server side using node (don't be scared, it will be easy).

Node (http://nodejs.org) is a JavaScript runtime environment based on Google Chrome's V8 JavaScript engine. We can think of it like the Java or .NET runtime environment for java or .net code, but this one executes JavaScript and it has very good performance.

The installation on any platform can be done using the package managers, since node is available in almost all the package repositories; on Ubuntu we will go with the traditional:

```
sudo apt-get install nodejs
```

After the installation, we can validate if everything was installed correctly using the:

```
nodejs -v
```

The result of this command should display something like v0.12.4 (this is the latest version of node at the publication date).

We will write a lotto number generator application which is capable of generating random numbers between one and 90, it will generate five numbers which we could play on lotto later :-)

Here we have the source code:

```
console.log('Program will generate 5 lotto numbers between 1 and 90.');
var predefinedNumbers = [];

for(var index = 0; index < 90; index++) {
    predefinedNumbers[index] = index + 1;
}
console.log('Initialized the set of numbers.');

var lottoNumbers = [];

for (var counter = 1; counter <= 5; counter++) {
    var isCorrectNumber = false;
    var selectedNumber = 0;
    while(!isCorrectNumber) {
        var selectedNumberIndex = Math.floor(Math.random() * 1000) % 90
        selectedNumber = predefinedNumbers[selectedNumberIndex];
        isCorrectNumber = lottoNumbers.indexOf(selectedNumber) == -1;
    }

    lottoNumbers.push(selectedNumber);
}
console.log('The 5 lotto numbers are:' + lottoNumbers);
```

In the first line we are writing a message to the console, notifying the users about what the program will do. Next we define an array called predefinedNumbers. Arrays in JavaScript can be created using the index [] operator or using the new Array(item1, item2, item3) constructor. The predefinedNumbers will store the initial numbers from one till 90, and this will be the array which we will select the generated numbers from.

The next line of code is the for cycle which fills the predefinedNumbers array with the numbers from one to 90. The for cycle in JavaScript is very similar to other for cycles which we can find in C-Syntax based languages. After prefilling the numbers, we log a message (Initialized the set of numbers). Then we create a new empty array (lottoNumbers) which will hold the results. After this comes the most complex part of the program, the generation of random numbers:

```
for (var counter = 1; counter <= 5; counter++) {
    var isCorrectNumber = false;
    var selectedNumber = 0;
    while(!isCorrectNumber) {
        var selectedNumberIndex = Math.floor(Math.random() * 1000) % 90
        selectedNumber = predefinedNumbers[selectedNumberIndex];
        isCorrectNumber = lottoNumbers.indexOf(selectedNumber) == -1;
    }
```

We have a for cycle which has five iterations, because we want to generate five lotto numbers. We create two temporary variables, isCorrectNumber is a flag which will signal if the number we generated was generated before or not, and we will use this to generate numbers till these are not correct. The other variable is selectedNumber, this will hold the selected (generated) number which is selected based on the selectedNumberIndex variable from the predefinedNumbers array.

The calculation of selectedNumberIndex seems a little odd, but lets analyze it. We say the selectedNumberIndex should be equal to a number which is generated Math.random() method, is multiplied by 1000, we take the mathematical floor of the value and calculate the remainder when divided by 90 (ie, 0-89).

Lets take a concrete example:

Math.random() returns 0.7323351332452148, multiply by 1000 will result in 732.3351332452148, we take the floor of this which will be 732, and we take the remainder when divided by 90, which is 12.

We use this calculated number (12) as an index to select a number from the predefinedNumbers array and we analyze the selected number, if that was already selected then we set the isCorrectNumber to false, otherwise to true. In case the number we selected from predefinedNumbers was selected before, we restart the process, we generate a new number with Math.random(), multiply, floor, divide by 90, take the reminder, select the

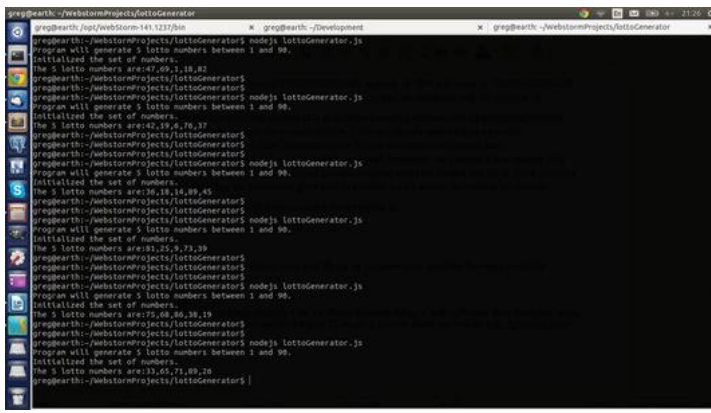
number, and check if that is correct or not. When we finished the generation of numbers we write the result to the console.

We can run the script from command line by typing in:

```
nodejs lottoGenerator.js
```

or

```
node lottoGenerator.js
```



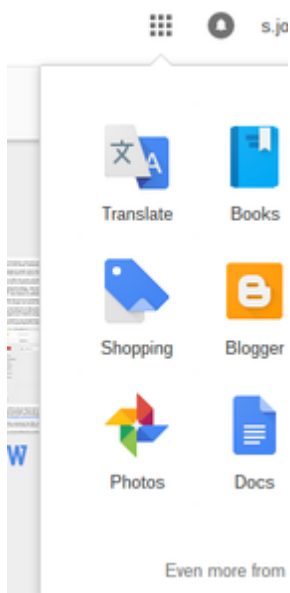
I would be happy to hear from you! Please let me know what topics you are interested in.

Bio: My name is Gergo Bogdan, I am a software engineer, blogger, tech enthusiast from Budapest, riding the waves of the constantly changing IT ocean :), you can check my website http://grelution.com.

Chrome Cult : Documenting the Google Docs

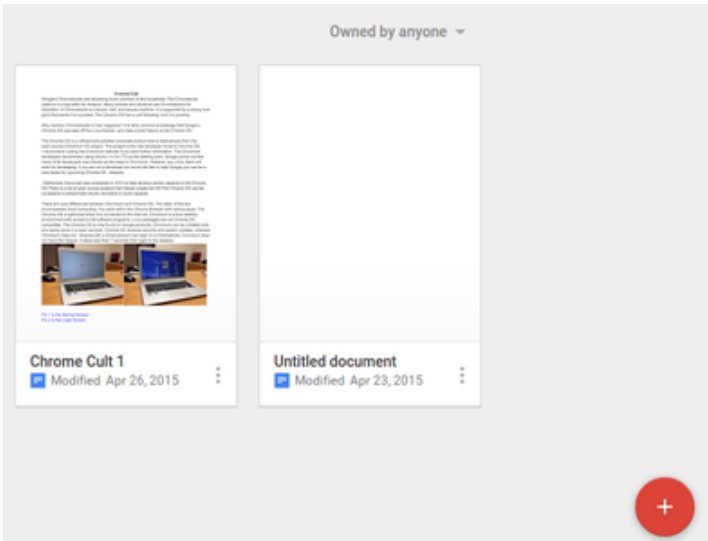
by S. J. Webb

I utilize Google Docs on a daily basis. Overall, it is a clean and minimal word processing program. It has fewer menu options than LibreOffice Writer. I have written about 10 or 12 articles using Docs. These articles document the clinical research that I perform for my daily job. I convey my ideas effectively in these articles, therefore Google Docs is a strong program. This program operates within the Chrome Browser. You can connect using the Shelf or via your Gmail account's Google Apps. The Google Apps is in the right-hand corner of your Gmail Account. The Google Docs will populate in the browser. If you press the red button, you can start typing.



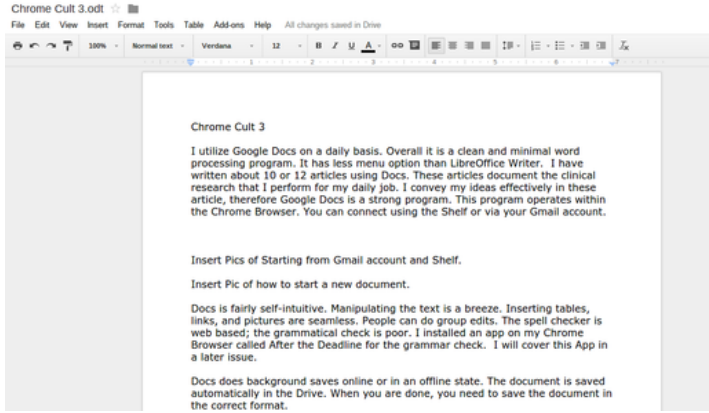
This is Gmail Account Access to Docs.

This is Shelf Access To Docs.

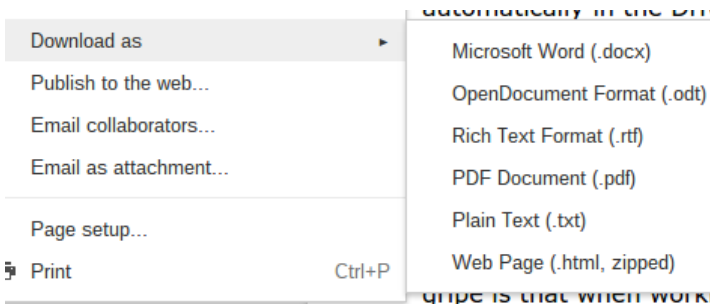


This is the start button.

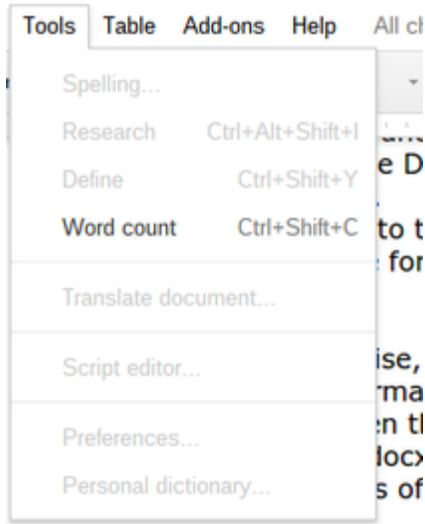
Docs is fairly self-intuitive. Manipulating the text is a breeze. Inserting tables, links, and pictures is seamless. People can do group edits. It looks like a typical word processing program. It has various menu options, I could write 10 pages about each menu.


Chrome Cult 3.odt
File Edit View Insert Format Tools Table Add-ons Help
Chrome Cult 3
I utilize Google Docs on a daily basis. Overall it is a clean and minimal word processing program. It has less menu option than LibreOffice Writer. I have written about 10 or 12 articles using Docs. These articles document the clinical research that I perform for my daily job. I convey my ideas effectively in these article, therefore Google Docs is a strong program. This program operates within the Chrome Browser. You can connect using the Shelf or via your Gmail account.
Insert Pics of Starting from Gmail account and Shelf.
Insert Pic of how to start a new document.
Docs is fairly self-intuitive. Manipulating the text is a breeze. Inserting tables, links, and pictures are seamless. People can do group edits. The spell checker is web based; the grammatical check is poor. I installed an app on my Chrome Browser called After the Deadline for the grammar check. I will cover this App in a later issue.
Docs does background saves online or in an offline state. The document is saved automatically in the Drive. When you are done, you need to save the document in the correct format.

Docs does background saves online or in an offline state. The document is saved automatically in the Drive. The file is saved as a Gdoc format. This format is only accessible to Google Docs. When you are done, you need to save the document in the correct format. The file is then downloaded into the Chrome Browser's Download Folder. It is probably best to use the ODT or DOCX file format. I have not yet tried the other file options.



This is the picture for saving a file:



Despite all the praise, I still have some disappointments. The spell-checker is web based; the grammatical check is poor. I installed an app on my Chrome Browser called After the Deadline for the grammar check. I will cover this App in a later issue. Docs does a poor job of opening odt and docx documents. When I saved a native Docs file into the ODT format, it was difficult to open that file with Docs. However LibreOffice and MS Word can open the odt and docx documents created by Google Docs. Another gripe is that when working Docs offline, the program options are diminished. The picture of the Tools menu shows the diminished options when offline.

Overall, it is a nice online word processor. It does a great job, it has the same functionality as LibreOffice. However I prefer LibreOffice over many word processors.

Conky Reminder

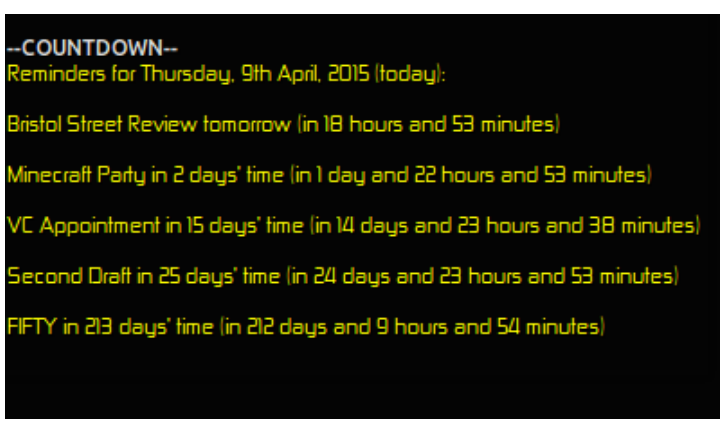
John Niendorf

If you are like me, you have a lot to do and sometimes forget when something needs to be done.

A couple of years ago, I wrote an article about using remind, but I have changed my setup enough that I thought a follow-up article might be worthwhile. There are many ways to keep track of tasks, this is how I am keeping organized – at the moment.

This solution will give you a chronological list of things you want to remember, sorted by due date. The list will also tell you how long until each item is due. The time is updated automatically and the list shows up on your desktop. If this sounds interesting keep reading.

Below is a shot of my list, which sits in the corner of my desktop.


--COUNTDOWN--
Reminders for Thursday, 9th April, 2015 (today):
Bristol Street Review tomorrow (in 18 hours and 53 minutes)
Minecraft Party in 2 days' time (in 1 day and 22 hours and 53 minutes)
VC Appointment in 15 days' time (in 14 days and 23 hours and 38 minutes)
Second Draft in 25 days' time (in 24 days and 23 hours and 53 minutes)
FIFTY in 213 days' time (in 212 days and 9 hours and 54 minutes)

The required programs are:

1. remind

2. conky

Remind is an ultra geeky calendar program that was written by David Skoll. Remind can do almost anything related to dates. It reads the information stored in a reminders' file which is just a text file with reminders written in a format that remind can understand.

The first part of the reminders' file is critical. The file I use has the following at the top:

```
INCLUDE /home/john/Reminder-files/remindershollidays
# Helper functions
FSET _days(x) iif(x>1, x + " days", x==1, "1 day", "")
FSET _hrs(x) iif(x>1, x + " hours", x==1, "1 hour", "")
FSET _mins(x) iif(x>1, x + " minutes", x==1, "1 minute", "")
FSET _smush(x, y) iif(x != "" && y != "", x + " and " + y, x + y)
# Main function
FSET _countdown(x) _smush(_smush(_days(x/1440), _hrs((x - 1440*(x/1440)
```

Looking at this, you can see that the first line is an include, which tells remind to include a list of holidays I have in another file. This lets remind include this other file in the list of events/dates it will track for you. The helper functions are what tell remind how to count the minutes, hours and days. The main function is the code that enables remind to give the specific days, hours and minutes left until an event. This is everything inside the parentheses in the scrot (SCReen-shOT).

```
REM 2015-04-11 +30 AT 13:00 MSG Minecraft Party %b (in [_countdown(trig
```

This is an example of a reminder in the format that is required for remind to be able to understand an event.

The format begins with REM followed by the date and then how many days in advance you want this reminder to be displayed. In this case, I want to start being reminded 30 days in advance. The AT tells remind what time the event will begin. This is followed by MSG and

the actual message you want to see. The ending %b tells remind to end with "in x days' time" and the code in the parentheses gives the exact breakdown of how much time is left. In the scrot above, you can see that there was two days' time until my kids' Minecraft party, specifically the party was in 1 day 22 hours and 53 minutes.

You could type out each new reminder or use snippets to speed up the process, but I found that to be too much work. So I wrote a very simple script to make it easier.

```
#!/bin/bash
echo "GENERAL REMINDERS"
read -p "What is the trigger date/day of the reminder? (N0 Default):" t
date="$(date -d "$triggerdate" +%F)"
read -p "How many days in advance should this appear? The default is 30
daysadvance=${daysadvance:-30}
read -p "What is the trigger time of the reminder? The default is 09:00
triggertime=${triggertime:-09:00}
read -p "What will the reminder say?:" message

echo "REM $date +$daysadvance AT $triggertime MSG $message %b (in [_cou
```

Basically, this script asks the user a few questions and then formats the answers into the remind format and adds the new reminder to the reminders' file.

The only problem is that this results in a list that is not sorted by due date/time, but is just a chronological list of when each reminder was written.

To figure out how to sort the file, I turned to the Ubuntu forums. Advice I received from forum members Lars Noodén and ofnuts got me started and headed in the right direction. A little more time searching the web and I found a page (http://unix.stackexchange.com/questions/75366/sort-part-of-a-file) that explained how to sort part of a file.

I modified their example and added it to my Reminder Maker script.

```
(head -n 12; sort -k 2,2 -k5,5n) *lt;~/.reminders 1<> ~/.reminders
```

Note the (head -n 12 part of the code. This is needed because this tells sort to start sorting AFTER line 12. The reason for this is that I did not want any includes or functions to be sorted. In my reminders' file, the actual reminders begin at line 13. So I wanted everything up to and including line 12 left alone.

Great, so now we have an easy way to make reminders and a way to have the reminders sorted so that they are listed based on when they are due, with the next reminder at the top of the list and the event furthest from now at the bottom of the list. How do we get it on the desktop?

Enter conky. Configuring conky is a topic for another article. Check out the Ubuntu forums conky thread for specifics if you need to, but basically conky will read whatever is written in a conkyrc file and put that information on your desktop. Every conkyrc file has two parts. The top part, above TEXT, contains all of the Configuration Settings and the bottom part, below TEXT, contains all of the Variable Settings that you want displayed on the screen.

So how do we get remind to output to conky? Below is the text part of my conkyrc file:

```
TEXT
${execpi 60 remind -q -r /home/john/~.reminders}
```

This tells conky to run remind every 60 seconds and display the output on my desktop. Thanks to mobildiesel for the idea of adding the -q and -r flags to the remind command. The -q option causes Remind not to queue timed reminders for later execution. The -r option disables RUN directives and the shell() function. I am not sure why, but, without these flags, my conky would crash.

Adding them solved the problem.

Further reading:
Conky Configuration Settings (above TEXT): http://conky.sourceforge.net/config_settings.html

Conky Variable Settings (below TEXT): http://conky.sourceforge.net/variables.html

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Preserve all historical versions & deleted files
Share folders instantly in web ShareRooms w / RSS
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The single rule for an article is that it must somehow be linked to Ubuntu or one of its many derivatives—Kubuntu, Xubuntu, Lubuntu, etc.

Write your article in whichever software you choose—I would recommend LibreOffice. But, **please spell and grammar-check it!**

The Official Full Circle Style Guide can be read at: http://url.fullcirclemagazine.org/75d471

Please read this document before submitting an article. Follow the guidelines and you will have a much better chance of seeing your article in Full Circle.

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There is no word limit for articles, but be advised that long articles may be split across several issues. In your article, please indicate where you would like a particular image to be. Please do not use any formatting in your document.

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Images should be no wider than 800 pixels, in JPG format, and use low compression.

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When reviewing games/applications, please state clearly:
• title of the game
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• where to get it from (give download/homepage URL)
• is it Linux native, or did you use Wine?
• your marks out of five
• a summary – with positive and negative points

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When reviewing hardware, please state clearly:
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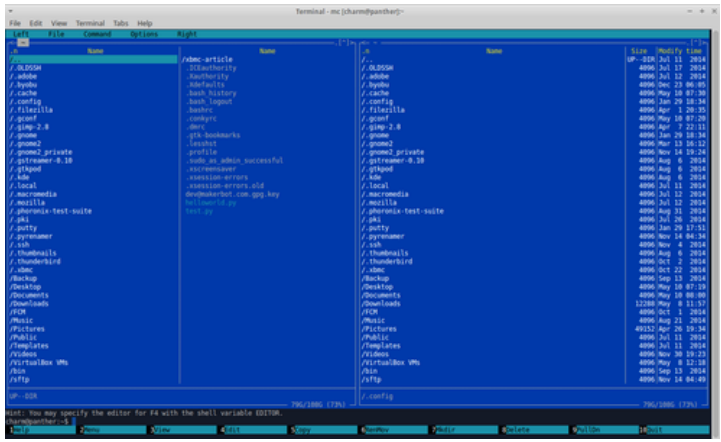
• did you have to use Windows drivers?
• marks out of five
• a summary – with positive and negative points

You don't need to be an expert to write an article – write about the games, applications and hardware that you use every day.

Linux Labs
Midnight Commander

Charles McColm



Several years ago, a friend started talking about the importance of search and how searching was going to change the way we use computers. I listened intently, but, coming from a DOS (Disk Operating System) background, something felt inherently wrong with the conversation. I've always been a fan of file structure, and having a mess of files that you search just didn't feel right.

My friend was correct, search has greatly changed the way we use computers. Desktop search arrived in a big way across many operating systems. Initially, when search was implemented, indexing ate a large amount of CPU cycles so computers with search enabled were slow. As the cost of powerful processors, big RAM, and big hard drives came down, search became a more viable tool. As useful as search is, file management is fundamentally important. When search fails to find a file, structure is important.

Just the other day a family member came to me with a cellphone problem. The problem she was experiencing was that she couldn't view any of the videos or pictures sent via Whatsapp to her phone. The real problem was that the phone's internal storage was full and she had no idea how to fix the problem. The family member had even opened the file management tool on her phone, but did not know she could move files off the internal storage on to an external microSD card. Because the Android OS tends to be laid out in a particular way, it was simple enough to use the file manager to go in and delete unnecessary files.

That long-winded introduction brings me to my favourite file management tool, Midnight Commander (mc). Midnight Commander is a text-based orthodox file manager that looks and mirrors a lot of the functionality of the DOS tool Norton Commander written almost 29 years ago by John Socha and released by Peter Norton.

Orthodox file managers have three panels, two top panels for graphical file management, and a command-line panel at the bottom. One of the things I like about Midnight Commander is the fact that it gives you a graphical-like interface on top of a text-based shell so it can be used on systems without a desktop interface (GUI).

Midnight Commander isn't installed on Ubuntu by default to you'll have to install it, but the package name is easy to remember: mc.

```
sudo apt-get install mc
```

Basic Usage

On Ubuntu, Midnight Commander is mouse aware so you can just click on the top menu options: Left, File, Command, Options and Right. To access the menu in a

text-only session, simply press the F9 key. The Left and Right menu options are identical and the actions work in each of the left and right shells.

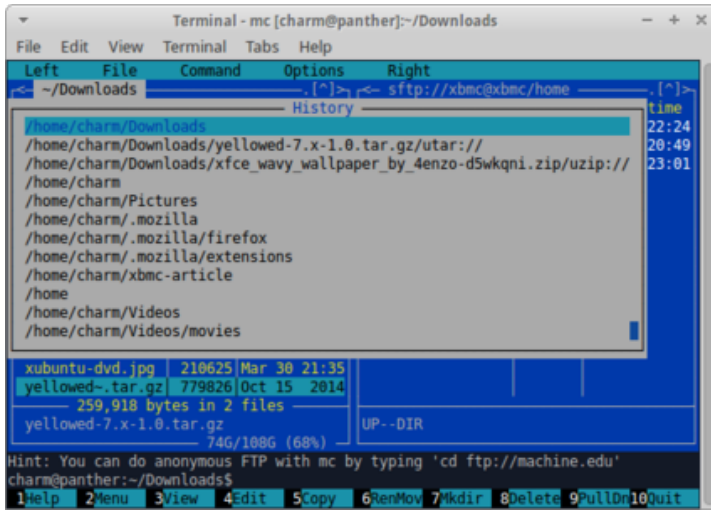
To switch between left and right panels, press the tab key. The insert key is used to select/mark files. Marked files change colour to yellow (in the default mc colour scheme; it's possible to change colour schemes). To select all files in a folder press + (which is usually shift = on most keyboards) then use * to select all files. Pressing - will do the opposite.

Pressing the Enter key while on top of a compressed file will attempt to view the contents of the compressed file (zip/gz for example). The F5 key copies marked files from one panel to another while F6 moves the files. If you don't have any files marked, F5 and F6 will copy/move the file that is currently selected (reversed background). To create a new directory press the F7 key. F8 deletes the marked files or the currently selected file. Lastly, the F4 key will edit whatever text file you're hovering over (letting you chose from ed, nano, mcedit or vim.tiny).

Among the more useful options in the left and right menus are the listing mode, sort order and ftp/sftp links. Listing mode has several options: full file list, brief file list, long file list and user defined list. Full file list is the default mode in Midnight Commander. On the leftmost column are the files and directories, the next column shows the file size followed by the file's modified time. Midnight Commander has a lot of sorting options: unsorted, name, version, extension, size, modify time, access time, change time, or inode. These options can be further modified by setting executable first, case sensitive or reverse. I frequently sort by extension so I can easily mark (the insert key) similar files for deletion (F8).

At the top of each panel are a less-than symbol < and a

caret ^ symbol. Clicking on the caret ^ symbol brings up a short history file of the paths you've entered. Beside the less-than symbol is the current path you're in. In the example below, the path on the left pane is ~/Downloads and in the right I'm connected to a machine called xbmc as the xbmc username in the /home folder.



Midnight Commander makes it easy to sftp (secure ftp) files to a server. Simply click the Left or Right menu option and select SFTP link. You'll be asked to enter the machine name. If you're connected to a machine where you use a different username be sure to include it before an @ symbol. So, in the example above: xbmc@xbmc where xbmc is the username and the machine name. If my username on the machine we were sshing into was charles, it would be charles@xbmc. Midnight Commander will ask for the password and mount the remote machine's mount point.

You can also type sftp username@machinename into the third panel at the bottom of midnight commander, but rather than mounting a folder in one of the panels it just runs a regular interactive sftp session.

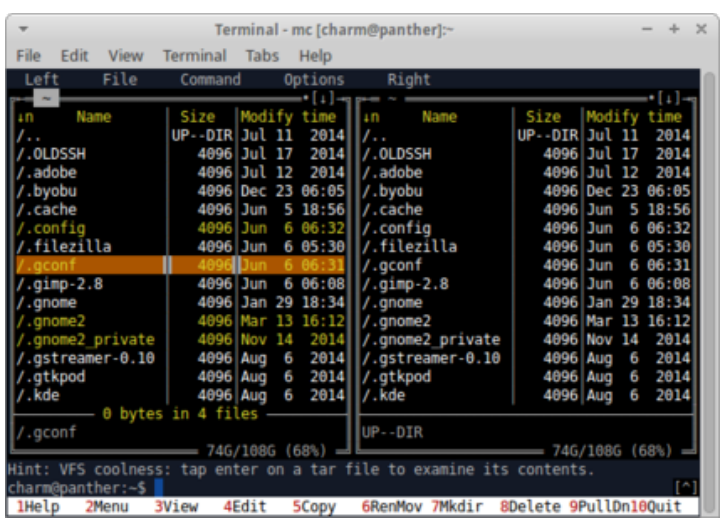
If you're a fan of skinning and don't like Midnight Commander's default colours, mc can be skinned. Unfortunately, some of the documentation I found on skinning Midnight Commander simply didn't work (editing the ~/.mc/ini file). This might stem from the fact that the Midnight Commander trac page hasn't been edited in over 6 years. What worked for me was following the steps outlined by Zoltan Puskas on his blog:

https://sinustrom.info/2014/03/23/midnight-commander-dark-color-scheme/

These steps involve putting a named.ini file in ~/.local/share/mc/skins, then setting that named.ini file in ~/.config/mc/ini (minus the ini) where the variable name is skin. An example:

```
skin=named
```

The named.ini file consists of a variety of [sections] that define the skin name, the lines look, the look for the core, dialog box, error, file highlight, menu, help, editor, viewer, and a slew of other options.


Terminal - mc [charm@panther]:~
File Edit View Terminal Tabs Help
Left File Command Options Right
Name Size Modify time
/.. UP--DIR Jul 11 2014
/.OLDSSH 4096 Jul 17 2014
/.adobe 4096 Jul 12 2014
/.byobu 4096 Dec 23 06:05
/.cache 4096 Jun 5 18:56
/.config 4096 Jun 6 06:32
/.filezilla 4096 Jun 6 05:30
/.gconf 4096 Jun 6 06:31
/.gimp-2.8 4096 Jun 6 06:08
/.gnome 4096 Jan 29 18:34
/.gnome2 4096 Mar 13 16:12
/.gnome2_private 4096 Nov 14 2014
/.gstreamer-0.10 4096 Aug 6 2014
/.gtkpod 4096 Aug 6 2014
/.kde 4096 Aug 6 2014
0 bytes in 4 files
/.gconf
UP--DIR
74G/108G (68%)
74G/108G (68%)
Hint: VFS coolness: tap enter on a tar file to examine its contents.
charm@panther:~$
1Help 2Menu 3View 4Edit 5Copy 6RenMov 7Mkdir 8Delete 9PullDn 10Quit

I've only covered some of the basics of what Midnight Commander can do. MC can undelete files (command menu), compare files and directories, view file details, change permissions and ownership on files, and a lot more.

If you're in that spot where you like graphical user interfaces, but also like the speed the console affords, Midnight Commander is an awesome tool.

*Charles McColm is the author of Instant XBMC, a short book on installing and configuring XBMCbuntu (a *buntu +XBMC distribution) - still relevant for Kodi, and the project manager of a not-for-profit computer reuse project. When not building PCs, removing malware, and encouraging people to use GNU/Linux, Charles works on reinventing his blog at http://www.charlesmccolm.com/.*

Book Review
Automate the Boring Stuff with Python, Practical Programming for Total Beginners.

Author - Al Sweigart

If you fit this book's target audience (you are not a coder, but have an interest and want to learn, and want to make coding both fun and useful in your life), this is a book to help you achieve that goal.

The author starts the book with a simple and effective real-life example and moves on to introduce and teach basic coding terminology and concepts and how to build useful programs in the Python programming language. The book is split into two main parts: “Python Programming Basics” and “Automating Tasks”. The book content is split roughly 1/3 Basics and 2/3 Tasks.

The examples and project programs are presented within the framework of Python 3 and should not be applied to the earlier Python 2 version as they may not function properly there.

In the Tasks portion of the book, the reader is led through specific coding projects and the coding process for that project. Each chapter ends with a set of practice questions (answers appended) to help the reader track their understanding and progress as they move through the book. A partial listing of the projects includes the following.

- Reading and writing files
- Debugging
- Web Scraping

- Working with Excel Spreadsheets
- Working with PDF and Word documents
- Working with CSV Files and JSON data
- Sending Email and Text messages
- Manipulating Images
- and more …….....

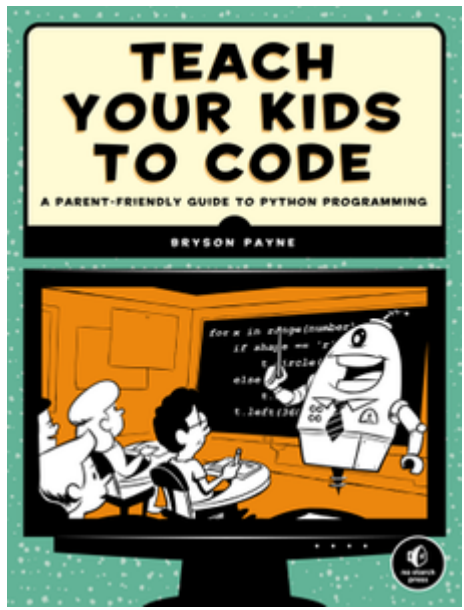
Unlike some books on the subject of programming, this is a “user friendly” book. The coding basics and examples are clearly explained and understandable. The book runs to over 450 pages – a lot of learning to assimilate, but very well presented.

As someone who fits into this target audience, I give the book 5 stars and recommend it to those who want to learn how to utilize coding in Python to solve some of the real life challenges they meet.

Jim Dyer is a retired Chemical Engineer who, over the years, has used DOS, Macintosh, Windows, and now, happily, Ubuntu Linux 14.04.

Book Review: Teach Your Kids to Code

by Elmer Perry



Title: Teach Your Kids to Code: A Parent-Friendly Guide to Python Programming
Author: Bryson Payne
Publisher: No Starch Press
ISBN-10: 1-59327-614-1
Pages: 336

Have you ever thought about creating an after-school code club at your child's school? Or perhaps you want to teach your child about programming while learning to program yourself. Maybe you are an adult just looking for a gentle introduction to the world of computer programming. Where do you start? You've looked at some of the books at the bookstore and are not sure if you should start with C, C#, C++, Python, Java, or some

other language. One possible start to you and your student's journey into computer programming is Teach Your Kids to Code by Bryson Payne. In his book, Dr. Payne takes a very systematic approach to programming. He teaches not only Python, but the methods used to develop the code – which you can apply to any programming language. You don't have to worry about not knowing how to code yourself. The book is built on the principle of learning together. He keeps it fun and understandable for both you and your students.

Dr. Payne begins his book by giving reasons for teaching children to code. While programming is a skill they can use later in life, coding is a fun way for children to learn problem solving. Dr. Payne takes coding beyond just copying code from the book and introduces children to the thinking process used to develop program algorithms. The book is more than a beginner book for Python. The book is a beginner book for programming.

Each chapter introduces a new topic. Dr. Payne walks you through the mathematics and logic involved in the solution of the new program. He shares the thought process he used to get to the final code. The ability to create a program algorithm is one of the keys to coding. Being walked through the process helps you develop the skill of problem solving. Dr. Payne then presents you with the final result, which you can enter, save, and run on your own computer. To further develop the sense of problem solving, Dr. Payne will present you with some possible tweaks or changes you can make. These he doesn't always explain but leaves it up to you to solve. Each chapter also ends with two or three challenges. Again, these are to help develop the skill of problem solving, as well as testing your knowledge of what you have learned. You can find the solutions to the tweaks and challenges by downloading the code files from the book's web page.

The level of coding starts out simple as expected. Slowly, he adds new data types and programming concepts. Each time a new data type or concept is introduced, he explains what it is and how it is used. Through each step, he builds on what has already been learned. In later chapters, as the code blocks get longer, he explains the code in chunks; then, he puts it all together at the end. By the end of the book, you have developed two fully functional arcade-style games.

Dr. Payne touches on most of the basic Python types and tools, including an introduction to classes. As they are used, he describes their function and use, with the exception of two cases:

- Throughout the book, he uses the data type tuple but never explains what they are.
- In another instance, he uses list comprehension, and while he did explain the code, his explanation didn't leave me feeling I could duplicate it on my own.

Neither of these discredit the book. There is just too much good stuff to throw it out over these minor offenses.

The book would make a good starting textbook for a code club or computer programming course for children. Throughout the book, Dr. Payne uses turtle graphics and Pygame for the programs. The use of these two tools makes the learning very visual, which is helpful for teaching children. He keeps the language on an elementary school level, and when he uses computer and programming jargon, he explains their meaning. Each new line of code is explained in a way that the student could reuse it in another program. In fact, code is reused and expanded on throughout the book. Dr. Payne doesn't just explain what is happening in the code, but walks the reader through the process of creating the algorithm that leads to the final result.

The book is not just for children. Adults interested, or who think they might be interested, in programming could use the book as an introduction to computer programming. It's not college level material, but it could prepare you for such advanced classes.

The appendices give detailed instructions on installing Python and Pygame on Windows, Linux, and Mac, and a short lesson on creating modules. The code in the book is based on the 32-bit version of Python 3.2. The 32-bit version is necessary to use Pygame. Since the default Python version in all the Ubuntu flavors is 2.7, you will need to install version 3.2 from the repositories. I was able to use the instructions in the appendixes to install both Python and Pygame on Kubuntu and Windows computers. I did not have a Mac available to test the Mac install. The appendix on creating modules is a nice extra for learning how to create reusable code.

Don't know how to code but think your children or students should? Teach Your Kids to Code is the book for you. Dr. Payne will lead you through the process. He encourages the process of learning together. Each step through the book teaches something new, and helps you to understand the process of creating a program. The use of turtle graphics and Pygame makes the programs fun rather than just academic. Together, you and your children or students can learn the fun of coding.

[4 out of 5 stars]

My Story
Going Linux Full Time

Roland Hunt

The last article I wrote was about my dual boot Windows 8.1 Pro / Ubuntu 15.04 laptop and Acer Chromebook setup. Well, since then I've moved over to a full time Kubuntu laptop and Acer Chromebook setup with my only Windows computer being my HP Stream 7 Windows 8.1 tablet.

After trying out Arch Linux on the laptop, which entailed spending the better half of the afternoon trying to install and configure Arch Linux, it ended up giving me a pounding headache and a broken install. I then decided to give the Netrunner rolling release a try as it's based on Arch and I really wanted to see what Arch was like as I've never tried anything other than OpenSuse, Fedora and Ubuntu. It was a far easier install but still left me with a broken install.

I then decided to give Ubuntu Studio 15.04 a try. Although Ubuntu Studio is a very polished OS as a whole, the XFCE desktop doesn't seem as polished as the other desktop environments. KDE Plasma 5.3 seems to be the most polished of the current desktop environments with Unity coming second and Gnome third.

But due to some strange glitching of the KDE Desktop, the screen flickers when running on my laptop screen and when connected to my external monitor. I'll have to see if I can live with this weird glitching of KDE Plasma 5.2 or whether to go back to Ubuntu Studio – the brief time that I was using it I had no issues with the screen. That could be due to the low latency kernel used by Ubuntu 15.04

and the low memory footprint of XFCE compared to KDE.

Luckily I've got my Acer C720 Chromebook with the Gentoo-based Chrome OS that I can use while I decide what to do with my main Linux laptop, but I'll probably write another article on my Linux adventure when I decide whether to stick with Kubuntu 15.04 or make the switch to Ubuntu Studio 15.04. But until I decide which way to go, I'll probably download the Ubuntu Studio 15.04 ISO as I only used a 32GB SD Card to install Ubuntu Studio when I briefly tried it and then re-used it for Kubuntu 15.04.

As I want to try to get into YouTube content production and maybe more in the future, then Ubuntu Studio might be a good idea.

LETTERS

LTS Updates

I'm an Ubuntu user and have been since version 9.04. I prefer to stick with LTS support versions. However, the thing that annoys me the most is that the software center for the long term support versions generally doesn't keep up with software updates for programs like GIMP, Audacity, Digikam, Libre Office, etc. Often these are very important updates that we shouldn't have to wait for three years. Sometimes there are other places to get the updates and we have to find and add a PPA to get them because Canonical doesn't add to the software center. Is there any way to convince the powers in charge to keep these programs updated in the LTS versions? For example, Audacity is now in general release for version 2.1.0. The software center is still on version 2.0.5. Digikam is currently in release for version 4.9 whereas the software center is still at version 3.5.

Jerry Reed

EPUB Fonts

A quick thing I wish to draw your attention to—I have noticed that the ePub version of the magazine has a technical problem of some kind that disables font resizing on a mobile phone. I normally use fbreader on Android for reading epub docs, so at first I thought that it was due to an fbreader application bug. I managed to confirm the font size issue with two other Android ePub readers, which kind of rules out fbreader being at fault.

Jan Henkins

Brian says: *Regarding the ePubs themselves, they do not have the font size locked.*

As you probably know, zoom does not work on images or text in ePubs on most devices. The only way to get a zoom effect with text is to change the font size.

On Android phones, this feature sometimes stops working in a variety of apps including ePub readers. The only way that I know of that will usually get it working again is to switch the phone off and then on again.

More LaTeX

I would like to thank you for taking my suggestion of referencing TexStudio. Indeed, it has some cool features, and I think many readers will agree with that.

Regarding the suggestion of ShareLatex, I would like to suggest two more things, I hope you like them:

- As you mentioned, ShareLatex has very limited features for free accounts. However, you have the possibility to have the equivalent to a professional plan by inviting other people. Take a look at this link: https://www.sharelatex.com/user/bonus
- When it comes to collaboration in latex, I just use ShareLatex, but some colleagues of mine use Overleaf (https://www.overleaf.com/) which seems to be even more complete than ShareLatex. Maybe it would also be useful to mention it to the readers.

Tiago Azevedo

John says: *Thank you for your letter. The LaTeX online services offerings are worthy of a complete article on their own. I plan to write an article about them soon after I get a chance to explore them. Or if someone else beats me to it, that*

is good too.

I cannot think of a better endorsement of LaTeX than the academic institutions that have purchased LaTeX online services. Is there something going on out there that we do not know about? Cannot deny the importance of the improved ability of scholars to collaborate with the online LaTeX services.

Speaking of that, another new LaTeX online service is Simple LaTeX: http://www.simplelatex.com/. It is made so that we can send snippets of LaTeX to each other via email. It is not a bad place to test some LaTeX code.

While we're on the subject of LaTeX, sometimes there is a problem with the TexStudio icons. If the icons do not appear in your TexStudio menu bar, this will fix the problem:

```
sudo apt-get install libqt4-svg
```

Q&A

By Gord Campbell

Q How can I remove the guest logon in Ubuntu?

A Run this command: gksudo gedit /usr/share/lightdm/lightdm.conf.d/50-ubuntu.conf

Add this line at the end of the file:

allow-guest = false

Save it and exit.

Q I have heard that Skype is available for Ubuntu. How should I install it?

A (Thanks to craig10x in the Ubuntu Forums) You have to go to software and updates (find that using the dash search) and under the "other software" tab, check the 2 boxes that say Canonical Partners… then close it (as you do that it will tell you to hit the refresh button)... Then, when you open the Ubuntu Software Centre, you can search for skype… that will bring it in...

Q During system startup, I get this message: "ACPI PCC probe failed starting version 219"

A It's a warning, ignore it.

Q I want to set up a server-based project management system so clients can assign tasks to me, and we can both see the status.

A (Thanks to tgalati4 in the Ubuntu Forums) I have used Tracks for this: getontracks.org

Q How can I see my current network settings?

A Enter this command: ifconfig -a

Q I dual-boot Windows 7 and Ubuntu 14.04. I plan to upgrade the Windows 7 to Windows 10 when it becomes available. Is there any danger that I will lose anything?

A Any upgrade has the possibility of causing problems. I suggest a full backup to an external drive. On the Windows side, install Macrium Reflect Free and make an image of your Windows partition(s) onto the external drive. Make a Macrium restore DVD. Mount the image and make sure your latest files are present.

For the Ubuntu side, use Clonezilla to make an ISO on the external drive. Make sure you have an Ubuntu live CD or USB.

Read about Boot Repair in the community docs, and have it at the ready, since there is a good chance the Windows upgrade will wipe out the

GRUB boot manager.

Top questions at Askubuntu

- command to find files by searching only part of their names?
  http://goo.gl/EsV41n
- Problem with spaces in file names
  http://goo.gl/zzVscc
- How to delete all files except one named file from a specific folder
  http://goo.gl/lXj7y7
- Terminal 'incognito mode'?
  http://goo.gl/tppzZe
- How do I permanently change window titles?
  http://goo.gl/HstaCR
- How to execute C++ program whenever a USB flash drive is inserted
  http://goo.gl/RygG6z
- Output only MAC address on Ubuntu
  http://goo.gl/JOdPwM
- Why does Ubuntu provide the Multiverse repository?
  http://goo.gl/q6nGam
- How to leave a USB port powered during shutdown for charging mobile?
  http://goo.gl/dvCKXG

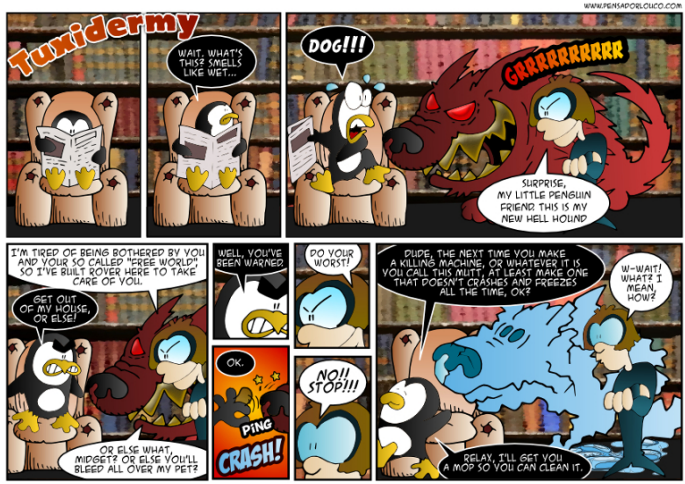
Tips and Techniques

Uninstall?

It's surprising how often the question comes up, "how can I uninstall Ubuntu?" The glib answer is that you don't need to uninstall it, just run gparted from the install media and wipe the partition.

Sadly, in many cases where you are dual-booting, that is not a good solution. If grub has become the boot manager, you probably need to Google "change grub defaults" and follow the instructions you find on Askubuntu to make something other than Ubuntu the default. Then you can run gparted, or the Windows partitioner.

The other approach is to redo the installation, or some other installation, correcting whatever caused you to want to uninstall. KDE was too heavy for your old computer? Try Xubuntu.


Tuxidermy
WAIT, WHAT'S THIS? SMELLS LIKE WET...
DOG!!!
GRRRRRRRRR
SURPRISE, MY LITTLE PENGUIN FRIEND THIS IS MY NEW HELL HOUND
I'M TIRED OF BEING BOTHERED BY YOU AND YOUR SO CALLED "FREE WORLD" SO I'VE BUILT ROVER HERE TO TAKE CARE OF YOU.
GET OUT OF MY HOUSE, OR ELSE!
OR ELSE WHAT, MIDGET? OR ELSE YOU'LL BLEED ALL OVER MY PET?
WELL, YOU'VE BEEN WARNED.
OK.
PING
CRASH!
DO YOUR WORST!
NO!! STOP!!!
DUDE, THE NEXT TIME YOU MAKE A KILLING MACHINE, OR WHATEVER IT IS YOU CALL THIS MUTT, AT LEAST MAKE ONE THAT DOESN'T CRASHES AND FREEZES ALL THE TIME, OK?
W-WAIT! WHAT? I MEAN, HOW?
RELAX, I'LL GET YOU A MOP SO YOU CAN CLEAN IT.

Review
Saitek Pro Flight System.

by Dick Thomas

One of the hardest things about this yoke is pressing the 'buy' button on the website – due to its price.

Installation is straightforward with its single USB connector for the PC and one connector for the quadrant. Under KDE4 and X-Plane, both were detected for me out of the box as a standard joystick/gamepad – but then deciding what functions to assign the plethora of buttons and controls isn't straightforward.

Both the yoke and quadrant come with plastic clamps to hold them to a desk. Once tightened, they are going nowhere with normal use and they feel very robust. The whole setup has 20 buttons or switches, a POV hat, three levers, chronograph buttons, and a mode switch – plus the usual X/Y axis for the Ailerons and Elevator. Under X-Plane, and, more importantly, Linux, all axes, and the buttons and hat, are user configurable.

The Yoke takes up a large part of my desk, as I align it with a monitor for the best sim experience – leaving not much space for a keyboard or mouse either side. The buttons and switches are quite soft to the touch, but they have a reassuring click feel to them when they are activated; there's a "mode switch" which, under Linux, sadly just acts as a permanently activated switch that I've found useful for switching the outside/inside views – but not much else at the moment.

The aileron and elevator axis doesn't stick at all, and, when released, it springs back to the neutral position with very little bounce, and doesn't feel too heavy or stiff. It is quite responsive on the sim once past the null zone, approximately 5 degrees left or right, and about 1cm of push and pull. In the aircraft it does feel a little unresponsive, but this may be the weather or just my lack of familiarity with using a yoke over a joystick.

On the front of the yoke there's a chronograph; while using Linux the clock part doesn't work but the timer does and that is the important bit!

The quadrant has three levers that are plastic, but they have a very sturdy feeling and are more than suitable for the task. Each has a switch built in to the lever below the 0% point that could activate a reverse thrust or engine cut-off. Atop each lever is a removable color-coded knob allowing customisation - in case you were to buy a second quadrant or you just don't like the order. At the very bottom at the front there are some three way switches, one for each lever – useful for things like flaps and speed-brakes. The quadrant that comes with the yoke isn't USB (like the standalone version), but has a PS/2 style connector that plugs into the side of the main unit – and thereby freeing up a USB port.

The body of the yoke has 3 USB ports that are meant to

work out of the box. But, after much experimentation, I found they were useless – they require a 5V power adapter to give enough power for the Saitek radio, switch and multi panels to work, and none of the power adapters I've tried would fit without the use of a Swiss Army knife to remove some of the bezel on the connector – thereby making the shaft longer. Once that has been done, the hub worked perfectly thanks to a quick trip to the local hardware store.

Prices can vary from £100 to £140+, but Google can and will be your friend! – if you decide to take the plunge and buy!

As a useful side-note, the Yoke when combined with some rudder pedals can be used with Euro Truck Simulator 2 and other driving simulations.

CH Pro Pedals are so named because they are 'professional' hardware. They look a little bland and dull (for lack of better words) – not as fancy-looking as the Saitek ones – but they feel sturdy and very well constructed – in Mexico of all places.

These are not built just for flight! They come with two “lumps” of plastic that can be placed in the runners of the pedals to stop them moving around, and thereby allowing the remaining movement to be used as traditional driving pedals.

The pedals come with no drivers, so they just need to be detected as a HID (Human Interface Device). Sadly, while KDE detected them and they worked, X-Plane did not, This is an easy fix, thankfully. In a terminal run the command:

```
sudo gedit /etc/udev/rules.d/99-X-plane.rules
```

and enter the following on one line of text

```
KERNEL=="event*", ATTRS{idProduct}=="00f2", ATTRS{idVendor}=="068e", MO
```

Then save and reboot, or restart udev, and X-Plane will now detect your new Pedals.

So, driving or flying, these are awesome pedals and will take some beating in every sense of the word.

Saitek http://www.saitek.com/uk/prod/yoke.html
Flight store http://bit.ly/1tzFuTn
Maplin PSU http://bit.ly/1tIiGGI

http://www.chproducts.com/Pro-Pedals-v13-d-716.html

Ubuntu Phone
End of May Updates:

The full list of Ubuntu Phone updates from May is provided below.

Indicators

- Icons are now all monochromatic

Web Browser

- Bottom edge gesture to reveal tabs view
- New settings UI with Privacy settings
- Improved interaction and visuals of top sites
- Improved scrolling smoothness and chrome interaction
- Enhancements to search suggestions from URL bar
- Bottom edge gesture to exit fullscreen windows
- Enhancements to the insecure websites visual feedback
- Properly save and restore navigation state between runs
- Honour Window.close() requests
- Noticeable performance improvements in the generation of tab previews
- Private browsing
- Search suggestions in URL bar

Address Book

- Import contacts from SIM
- New settings panel
- Improved first time user experience for contact sync/import

Messaging app

- Group chat support (late landing)

Toolkit v1.3

- Migrated to the 5.4 version of Qt (https://wiki.qt.io/New-Features-in-Qt-5.4)
- Introduced 1.3 version of the Toolkit
- Brand new ListItem with fancy features and high performance
- Refactored UbuntuShape for better performance
- New dedicated overlay shape. Made use of the new UbuntuShape architecture to create an extended shape with efficient overlay rendering
- Improved alarm services
- New text handler visuals and improved behaviour in text areas
- Optimized Slider and ProgressBar components.
- PageStack header animations for MainView 1.2
- Refactored OrientationHelper
- Simplify animation code and make it more robust

Scopes

- Scope tagging. With this, newly installed scopes will be automatically aggregated if their tags are matched by an aggregator
- Today, Nearby and News scopes added support for keywords
- New and improved layout for the News scope

Qt 5.4

- Introducing Qt WebSockets: http://doc.qt.io/qt-5/qtwebsockets-index.html (requested by developers, now on vivid images)
- Two new QML modules: Declarative State Machine, QML Models

- OpenGL ES 3.0/3.1 support
- Improved font rendering for many languages
- QQuickRenderControl for efficient rendering into framebuffer objects
- QStorageInfo
- Lots of performance improvements and bugfixes

BQ launches the new Aquaris E5 HD Ubuntu Edition

BQ and **Canonical** today [June 2, 2015] jointly announced the launch of the Aquaris E5 HD Ubuntu Edition which follows on from the successful launch of the Aquaris E4.5 Ubuntu Edition earlier this year.

The new device comes with a host of impressive features including a 5” display with IPS HD technology, HD screen resolution of 720 x 1280 pixels, and 380 cd/m2 maximum brightness. It also includes a MediaTek Quad Core Cortex

A7 processor that runs at up to 1.3 GHz, an internal storage of 16 GB and 1 GB RAM. Additionally, it features a 5 megapixel front camera and 13 megapixel rear camera, equipped with high quality Largan lenses and BSI sensors. Other features of note include dual flash and Full HD video recording (1080p).

As with all BQ smartphones, the Aquaris E5 Ubuntu Edition comes fully unlocked with dual SIM functionality so that users have the freedom to select their operator of choice and can use SIMs from two different operators.

The device will be available for purchase from mid-June, across the entire European Union from the BQ online store (http://store.bq.com/en/) for €199.90.

Security
VeraCrypt Encryption Software

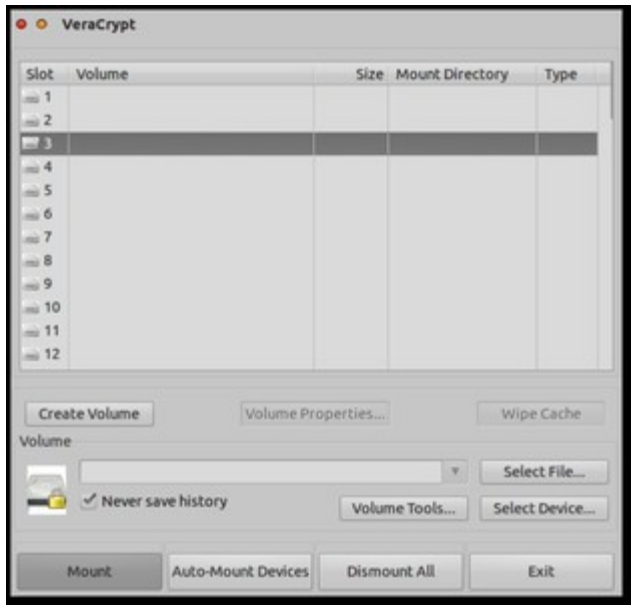
by Oscar Rivera

It's been about a year since the untimely death of TrueCrypt encryption software. TrueCrypt was the undisputed king of on-the-fly encryption software for many years. Average users, hackers, spies, and even various governments, have used TrueCrypt and relied on it to maintain sensitive, classified information hidden and secure. So, it comes as no surprise that in May 2014, when the TrueCrypt Foundation announced that TrueCrypt had reached end of the line and would no longer be developed, supported or maintained, users in every corner of the planet began to scramble and look for alternative solutions to meet our encryption needs. We, here at Full Circle Magazine, have been doing our best to keep our readers informed as to diverse alternative solutions for encrypting our data. Back in FCM#87, Iain McKeand reviewed a handful of CLI applications that are available for Linux users. We now introduce VeraCrypt, an open-source re-incarnation of TrueCrypt. If you're like me and really miss a cross-platform encryption solution with a GUI, then VeraCrypt is exactly what you've been looking for. Although I use Ubuntu at home, I don't have the luxury of using Linux at work. In fact, I have to use both Mac OS X and Windows at work. This is why cross-platform is important for me.

VeraCrypt is an open-source fork of TrueCrypt – developed and maintained by former TrueCrypt developers – which makes VeraCrypt basically the new, updated and improved version of TrueCrypt.

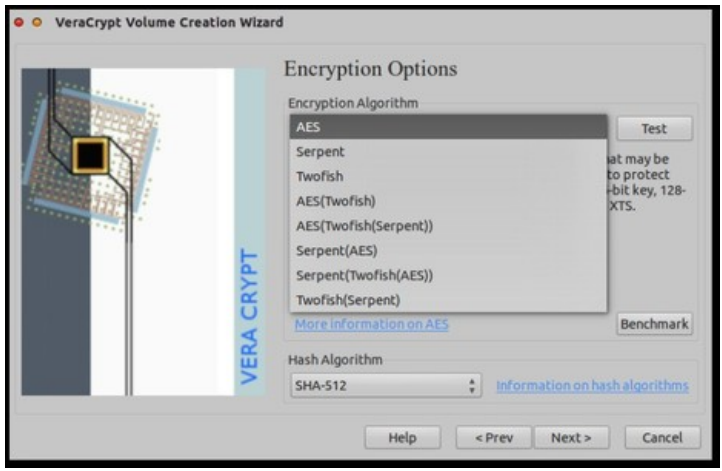
Using VeraCrypt

Using VeraCrypt is almost exactly like using TrueCrypt. VeraCrypt's graphic user interface is nearly identical to the TrueCrypt GUI.



To begin you must create a VeraCrypt container which is pretty straightforward and simple as long as you follow the instructions given with each new step. VeraCrypt holds your hand and guides you as you create your first container. Your first choice is whether you want a regular encrypted volume or a hidden volume. More on hidden volumes later. You must then select the location for your container. Having selected a location, you then select the type of encryption algorithm you want to use to encrypt your new volume. The choices you have available are AES, Serpent, Twofish, and an additional five permutations based on those original three choices. VeraCrypt gives you a simple explanation of each algorithm in the GUI, and, if you are so inclined, you can click on the “More Information” button which then opens up a web-browser with a more detailed explanation of the selected algorithm. For example, after opening a web-

browser you can read about how AES has been approved and used by the U.S. National Security Agency (NSA); this is followed by a technological explanation of why it's been used and approved by the US NSA.

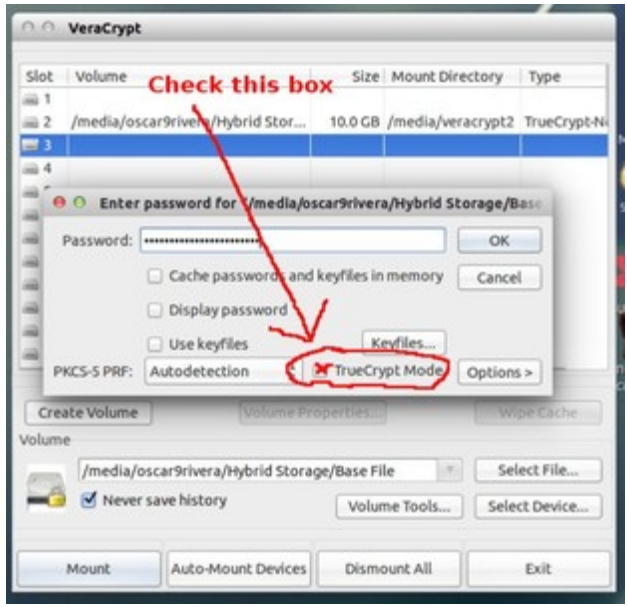


Having selected an encryption algorithm, it's now time to choose a size for your container. Now, we've arrived at perhaps THE MOST IMPORTANT step in creating a VeraCrypt container, selecting a password. The best encryption software in the world is useless if your password can be cracked in less than a minute, which is why creating a strong password is of paramount importance. However, your password is the ONLY thing that will decrypt your container once created; this means that if you happen to forget your password, then you can pretty much forget about ever accessing the information encrypted in your container. So, your password must be strong, but at the same time you can never lose it. What makes VeraCrypt so reliable is that there is nothing, not back-doors, nor VeraCrypt support, nor anything else, that will decrypt your container except for the password that you use when creating the container. Use a strong password but don't ever forget it; I cannot emphasize this enough. VeraCrypt suggests using between 20-64 characters as a password. Having selected a password,

you must then format the container. If you will be using this container with multiple operating systems, you must format the container with a file-system that is compatible with the operating systems you plan on using. The FAT file-system is perhaps the best multi-platform file-system as it can be used with Linux, Windows and OS X, but it has its limitations. If you plan to use the container only with Linux, then Linux Ext4 is your best choice for formatting. At this point, you create and encrypt your container. Depending on the size of container, this process can be quick or it can take a very long time. While the container is being created, VeraCrypt may seem unresponsive, it may even seem like it crashed or it's frozen; this is perfectly normal. It's probably best that you move on and work on something else while this step is doing its magic. Have a cup of coffee, read a book, surf the net – VeraCrypt will let you know when it's finished. Having created your first container, you are ready to mount it and add files to it.

Mounting Volumes

Having created a VeraCrypt volume, all you've got to do to access/add files is mount by decrypting it. This is a fairly simple procedure. All you've got to do is browse for the volume you intend to access by using the “Select Volume” button. When you've located it, then you click on the “Mount” button and you'll then be prompted to enter the corresponding password for the volume. When trying to open an old TrueCrypt container, you need to make sure to check off the box that says “TrueCrypt Mode” – otherwise the file will not open. If you don't check the box, VeraCrypt will not know that you're trying to open a TrueCrypt container – instead all it will tell you is that you have entered the wrong password.



Installing VeraCrypt

Installing VeraCrypt is fairly easy. First thing you must do is go to the VeraCrypt Downloads page, look for the version that's appropriate for your OS, and download the installer. After downloading, you'll have to extract the files and then you can install VeraCrypt. If you need further help on installing it, you can watch this easy-to-follow VeraCrypt Installation video. There are also a few websites that have detailed instructions for how-to-install veracrypt, or you can simply follow these instructions:

```
$ mkdir veracrypt
$ cd veracrypt
$ wget "sourceforge.net/projects/veracrypt/files/VeraCrypt 1.0e/veracry
$ tar -xjvf "veracrypt-1.0e-setup.tar.bz2"
$ rm veracrypt-1.0e-setup.tar.bz2
$ ./veracrypt-1.0e-setup-console-x64
```

A note on Hidden Volumes

A hidden volume is useful if someone happens to find

your encrypted VeraCrypt container, and, through extortion, torture, water-boarding, etc, you are forced to divulge your password. If you created a hidden volume, then there is absolutely no way anyone can know that the password you have revealed is not the password for your secretly double-hidden encrypted files but rather the password for your dummy encrypted container. In order to create a hidden volume, you must choose this option early on while creating a container, and the process will be twice as long because you will in fact be creating not one but two volumes, the large dummy container and the smaller hidden container inside the outer dummy volume.

Final Thoughts

TrueCrypt is dead and one of the main reasons given for its demise was that the software contained unfixed security issues. There are other forks that have come out from the ashes of TrueCrypt besides VeraCrypt. The other notable mention is CipherShed which is still undergoing further testing; it is still in Beta, and has not yet been released as stable. After a long auditing process, VeraCrypt has come out on top, the security issues mentioned in the TrueCrypt audit have been addressed and VeraCrypt has been deemed an improvement over the now defunct TrueCrypt. VeraCrypt is based on the same source-code as TrueCrypt, it uses the same GUI, it has addressed the security concerns, it is on its seventh stable release, and it is currently being supported and maintained, thus making it the logical software of choice for anyone who has used TrueCrypt in the past. I've personally been using VeraCrypt for the last four months and during that time I've been able to create new encrypted volumes with the same ease as when I was using TrueCrypt. I've also been able to access my older volumes originally created with TrueCrypt. Knowing that VeraCrypt has been audited and patched to be more secure than TrueCrypt gives me peace of mind in knowing

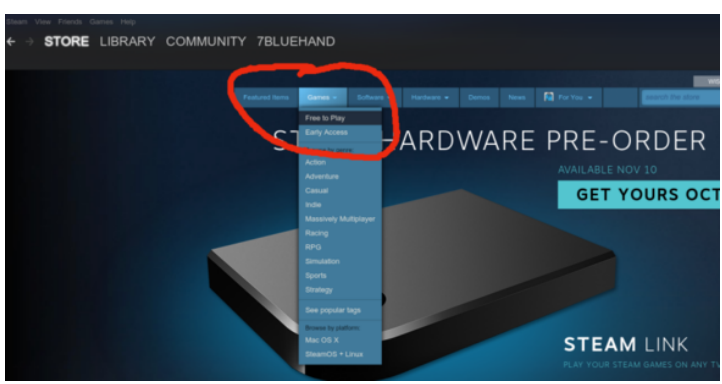
that my confidential files will remain confidential and yet easy to access as long as I remember the password for each volume. I strongly recommend it to anyone who may be concerned with privacy.

Oscar graduated with a music degree from CSUN, is a Music Director/Teacher, software/hardware beta tester, Wikipedia editor, and active member of the Ubuntu community. You can follow him at www.gplus.to/7bluehand or https://twitter.com/7bluehand, or email him at www.7bluehand@gmail.com

Free To Play: The New Trend in Gaming

by Oscar Rivera

I am constantly acquiring new video games to play, especially because I review a new video game for FCM on a monthly basis. However, this is not to say that I'm always buying new games. In fact, I often don't pay a single cent for some of my games. This is thanks in part to the new phenomenon that's been gaining popularity over the last couple of years: the Free-To-Play model (or F2P as it's widely known). Generally speaking, Free-To-Play games usually, but not always, fall into some sort of multi-player online games category with MMORPGs and MOBAs being the most common, but other genres are also included. In the past, most F2P games were Free-To-Play but, unfortunately, were also Pay-To-Win – which meant that unless you were willing to invest money buying in-game items, you would most likely not be able to compete with other players who might have spent a ton of money to level up. So, the question as to whether Free-To-Play games are worth playing is very relevant. The answer comes down to preference, but speaking only for myself, I can honestly say that YES, Free-To-Play games are definitely worth my time.



Although originally Free-To-Play also meant Pay-To-Win, lately that hasn't been the case. In recent years the Free-To-Play model has been shifting from a Pay-To-Win to a fully functional, 100% Free-To-Play, and even Free-To-Win model. Nowadays, you can play most Free-To-Play games without spending anything, while still being able to competitively keep up with the rest of the players. So the question rises, how are game developers and distributors able to make a profit or at least stay afloat with such a model? The answer is simple. Most of the money generated from Free-To-Play games comes from what are known as micro-transactions consisting mostly of cosmetic items. You give the players the game for free, and the money that they would have originally spent on the game itself is often spent buying cosmetic in-game items which they do not necessarily need but which will make their character look different from the rest. In the long run, most people actually end up spending more money while playing Free-To-Play games than they would have if they had bought the game. It's sort of reverse psychology in a sense. You download, install and play a game for free, then, once you decide you like it, you start spending money because in your mind, you haven't paid for this awesome game that you're playing so “why not spend a few cents to get a custom color for your vehicle? or how about a funny looking hat for your character?” Besides cosmetic items, some games also offer an alternate soundtrack, alternate loading screens, or alternate narrator voices. The possibilities of what you can buy in Free-To-Play games is limited only by the creativity of its creators or distributors. The fact of the matter is that if players like a particular game enough, they'll end up spending money buying things they really don't need. Little by little, the few cents you spend here and there start to pile up and you end up having spent more money via micro-transactions than you would have if you had originally spent $50+ upfront. Not all games follow the exact same model, but most follow some sort of variant of

it. Read on to find out where to get some of these games and for a brief description of some of the most popular Free-To-Play games out right now.

A good source for Free-To-Play games is undoubtedly Steam, a digital distribution platform specializing in video games developed by Valve Corporation. On Steam's Store page, if you click on Games, the drop-down menu will actually give you Free-To-Play as one of the choices. Once you've selected Free-To-Play, in order to see the games available on Linux, you should first change the setting from “Popular New Releases” to “Most Popular” and then, on the right hand side, scroll to the bottom to “Narrow by Operating System” and select “Linux/Steam OS” so that all non-Linux games get filtered out and you're left with over 5 pages of games that you can play. At the top of the list you will see DOTA 2, this is followed by Team Fortress 2, both titles by Valve. You can also go to https://www.gog.com/ for a few more options as well as your distribution's Software Center. So what kind of games can we get for free? Let's take a look at a few of them.

Undoubtedly, perhaps the most played Free-To-Play game available for Linux at the moment is Valve's DOTA 2 which was covered in detail back in Full Circle Magazine issue 79. DOTA 2 is considered a Multiplayer Online

Battle Arena, or MOBA, in which two teams of five players battle it out against each other. There are over 108 heroes to choose from at the time of this writing – with more being added at about 2-3 per year. This game is entirely free, and you need not buy anything in order to win. However, this is one of Valve's biggest money makers as it is perceived as more of a sport instead of just a video game. There are various DOTA 2-related tournaments throughout the year held all over the world, The International being the biggest. Last year's The International 4 was such a big event that its final match was even broadcast live on ESPN. The champion team won over $5 million dollars and the overall prize pool was $10.93 million dollars – making it the biggest electronic sports event in terms of money to this day. This year's The International 5 is already on its way to break last year's record. The funds for The International's prizes come from sales of The International Compendium as well as other Compendium-related sales. The Compendium is an electronic interactive booklet that accompanies the tournament. Only 25% of the total sales profit is used as prize money which means that last year's TI4 earned over $40 million dollars. Tournaments aside, in DOTA 2 you can always buy cosmetic items, loading screens, alternate HUD's, alternate voices for various aspects of the game, alternate animations for some of the heroes, etc. This is a game that often gets compared to giants such as World of Warcraft and especially League of Legends. If you haven't played DOTA 2 you may want to look into it; just keep in mind that the hardcore gamers take the game very seriously and in order to not be insulted when you begin online play, you should not only train extensively against bots but also watch some training videos and read some of the many guides aimed at newcomers.

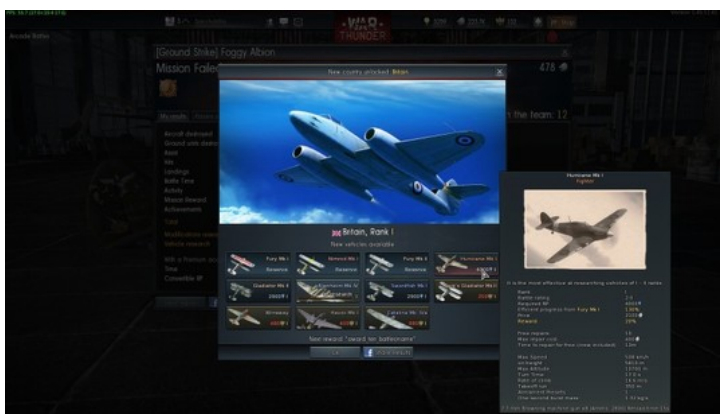
Another game worth checking out is Strife, also a MOBA. Strife is in many ways similar to DOTA 2 which is to be expected since they are both the same genre, but it's

different enough to stand on its own. Strife was developed and distributed by S2 games and was released May 2015. One of the main differences that make Strife more appealing to people is that the typical match lasts about half as much as a DOTA 2 match. Most Strife matches last about 20-30 minutes; in DOTA 2 a match usually lasts about 40-60 minutes. Being still an infant in the MOBA scene, Strife currently has 32 heroes from which to choose. Teams are made up of five on each side, but this is where the similarities with DOTA 2 end. All heroes in Strife carry with them a pet and each one also has their own personal courier that carries their items, while in DOTA 2 the courier is shared between the entire party. The graphics in Strife are quite colorful and very cartoon-like – which makes it a refreshing change. I have a feeling we'll be hearing more about this game in the future, especially as more people begin to play it. You can find out more about Strife by going to https://strife.com/, but ultimately to play it, you need to have Steam.

LexiKhan
I see you succeeded in freeing Auros... Good work!
Unfortunately the Alchemist has escaped me again.
His elusiveness is proving quite frustrating. Let's
head back, we must prepare for the worst.

If MOBAs aren't your thing, you can check out War Thunder, which was reviewed back in Full Circle Magazine issue 94. War Thunder is a combat Massively Multi-player Online (MMO) game in which you get to either fly a plane or navigate a tank in historic battles based around the WW II period. In this game, you can buy

other planes or tanks that are not included in the standard game. However, War Thunder also has bigger packages for you to get which have incredible savings built in – if you factor in how much each individual item costs. With new vehicles being added all of the time, this makes for an appealing option for some people. The most expensive of these packages is $99.99, and the “Starter Pack” currently runs for $4.99. War Thunder was developed and distributed by Gaijin Entertainment and released for Linux in November 2014. Although you can download and play War Thunder through Steam, you can also download the game from the War Thunder website at http://warthunder.com/en/game/.



Shifting gears to the fast moving world of car racing, it is my delight to inform that in addition to Tux Racer, you can not only race against other cars but also destroy them in the game Need for Madness? (yes, the ? is part of the name). This game was developed and distributed by Radical Play and to get it you can go to http://multiplayer.needformadness.com/ and at the top of the page click on “Play Game” which should take you to the download page. This game is cartoon-like – in both its graphics as well as its content. The instructions on how to play the game tell you that, to win a race, you can either get to the finish line first, or destroy all other cars. If your car takes damage or if you just want to make it faster, you can try to pull off some stunts when your car catches air after going through a ramp. If you succeed and land properly after a stunt, your car will be stronger and faster (or be repaired if it had previously been damaged). This game is very easy to play, and, so far, I haven't encountered any glitches or bugs while playing it.

If you're more into zombie-survival first-person shooters, then you should check out No More Room In Hell which is a stand-alone mod based on Half-Life 2. NMRIH was chosen by the Steam Greenlight community. It's a pretty good FPS zombie game and follows the traditional FPS design. When you first start out, you must find some sort of weapon to defend yourself, otherwise you'll be trying to fight off zombies with your bare fists. Being a co-op game, when you start the game you can either try to “Find a Server” or “Create a Server” in order to play a game. I haven't yet tried to create a server but there are some good guides on how to do that in the game's forum on Steam. I also recommend that you try to read through a guide on how to play the game as it is rather difficult to survive the first few times you play it. The lack of a true tutorial make it even harder to play when first starting out. However, getting killed early also made it like an obsession for me, making me play again and again over

and over because I cannot accept defeat.

You can get No More Room In Hell through its Steam page.

There are many more Free-To-Play games available at the moment that are worth looking into; I've listed only a handful of the games I've actually played. All of the games I mentioned here are easy to install and fun to play. All of the games run with little to no glitches in my Linux box which is one reason I decided to include them here.

My custom made Linux box:

AMD FX-6100 3.3GHz CPU (over-clocked to 3.5GHz)
Asus M5A97-EVO motherboard
Gigabyte Windforce GeForce GTX 960 graphics card with 346.59 proprietary driver
8GB of Kingston Hyper X RAM & 1TB Seagate Barracuda hard drive
Ubuntu 14.04.2 LTS with Unity desktop

Oscar graduated with a music degree from CSUN, is a Music Director/Teacher, software/hardware beta tester, Wikipedia editor and active member of the Ubuntu community. You can follow him at: www.gplus.to/7bluehand or https://twitter.com/7bluehand, or email him at: www.7bluehand@gmail.com

Ubuntu Games
Minetest

by Ronnie Tucker

It's probably fair to say that a good number of Minecraft players were pretty shocked when it was confirmed that Mojang had sold the game to Microsoft. Many players refused to play Minecraft just due to the fact that it was now owned by 'them'. Luckily there are many other alternatives to Minecraft. One of them is Minetest.

Minetest

Think of Minetest as being Minecraft in creative mode. By default, Minetest has no mobs (aka: bad guys) or NPCs (non-player characters), but they can be added via add-ons.

Minetest is also written in C++. Minecraft is written in Java. So, in theory, Minetest should run much faster even on old hardware.

To install Minetest, it's easiest to add the PPA and install it from there. So, in a terminal enter:

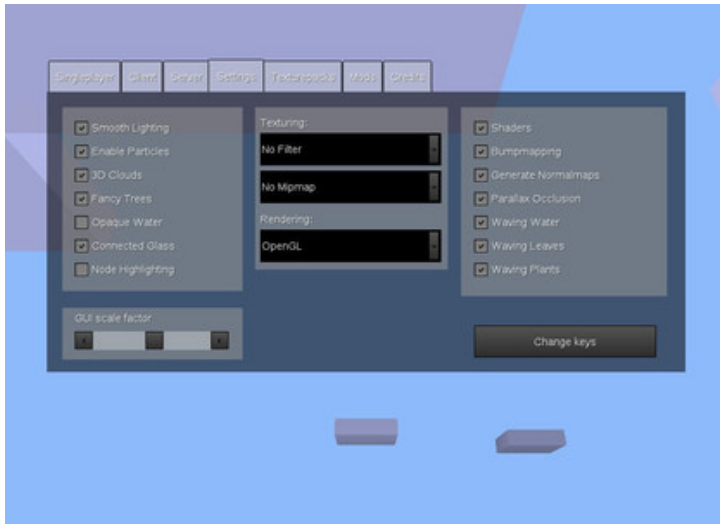
```
sudo add-apt-repository ppa:minetestdevs/stable
sudo apt-get update
sudo apt-get install minetest
```

After a short time, you'll see Minetest showing on your desktop menu under Games. Needless to say, clicking that will start the game.

First start

On first start, you'll obviously have no saved games or worlds, so things will look at bit empty at first.

Clicking NEW will let you create a new world and get building. But have a look at SETTINGS (one of the tabs at the top) to see some nice options you won't find in the default Minecraft.



You can enable/disable everything from bumpmapping, waving (of tree tops, etc), particle effects, and much more. If you're on old hardware, it's probably best to leave these off until you've seen how the basic game runs on your machine. If it runs as smooth as butter, then you can start enabling some of these options to enhance the look of the game.

We'll come back to the other tabs in a moment.

Create a new game and have a play around with it. Everything works exactly as Minecraft except for one thing: picking up dropped items. When a tree drops a shoot or an apple, you need to left-click on it to pick it up. Running over it does not pick it up. I actually like this idea as it lets me be choosy as to what I want to pick up.

Also, the game saves automatically, so don't panic when you see no save option.

Textures

You may bore of the basic textures and crave something a bit more up-market. Minetest can do that too. Where

Minetest shines here is that you don't have to do some crazy editing/patching to get high resolution textures. You just download one and use it.

For example: you can view the Sphax testBDCraft texture pack here: http://bdcraft.net/purebdcraft-minetest; click to download the 256 or 512 square textures. Download the zip file to somewhere memorable.

Open the Minetest folder on your machine. It's most probably hidden inside /home/[username]/ (and called /home/[username]/.minetest/), so you'll need to show hidden folders. If there is no folder in there called 'textures' now is the time to create it.

Now go to your download folder and double click the zip file you downloaded. Extract it to the .minetest/textures/ folder. So, in the textures folder you should now have a folder called Sphax TestBDCraft 256x MT04 (or 512x).

Start up Minetest and click the TEXTUREPACKS tab at the top of the screen. You should see the texture pack listed. Click it to apply it to the game.

Load up your game and revel in your new found beauty.

Mobs, Animals and NPCs

If you want to make it even more like Minecraft, then you'll need to add mods. This is where things can get a bit weird as the quality of the animal/mobs/NPC characters can vary between packs and makers. Some NPCs can look great, while some animals can look weird and out of place. So, don't expect clones of Minecraft pigs/sheep here.

The mod I was messing around with was simply called Creatures 1.1.4. You can download it from the creators forum post: https://forum.minetest.net/viewtopic.php?f=11&t=8638. This adds zombies, ghosts and sheep to the game. Unlike other mods, this one fits with the general look of the game, so the 'creatures' don't look out of place.

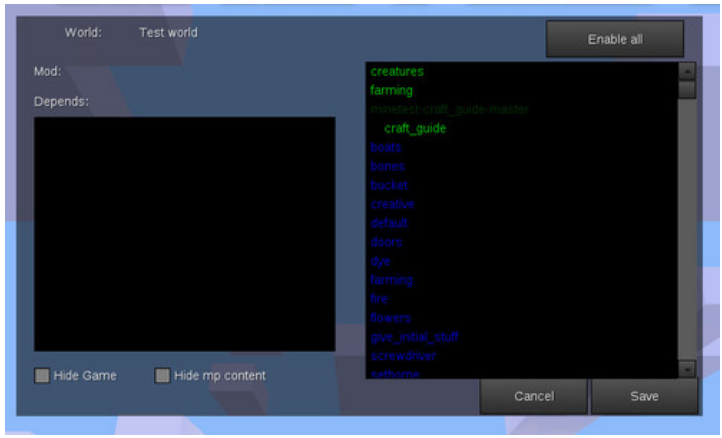
Installing a mod is the same idea as a texture pack. Open the .minetest folder and create a folder called 'mods'. Unzip the download in there and you're set.

Start up Minetest and click the MODS tab at the top. This is where things change from the texture packs.

The MODS tab shows you which mods are in place.

Select your world, but don't click PLAY. Instead, click

CONFIGURE.



Top left it tells you which world you're configuring (Test World in my case), and, on the right, which mods are enabled for that world. Click ENABLE ALL. The list should go green. Click SAVE. The mods in blue are ones that came with the game, don't worry about them staying blue.

Now you can choose the world and click PLAY.

I can also recommend the Farming Redo mod which adds more crops to the built-in farming system.

Conclusion

It may take a bit more work to get Minetest to be like good old Minecraft, but it is worth it. Having high resolution textures and the same items/recipes is great as is—it being free. It also has a nice little community forum with mods, texture packs and maps. Because Minetest is written in C++ rather than Java, it's smooth as silk—even when I ran it on a wide window that spanned across three monitors, and that was with a 256-square texture pack and all the bells and whistles enabled.

Definitely give it a go if you love Minecraft, but baulk at playing a Microsoft game. Or, if Minecraft was just too slow on your machine, give Minetest a try.

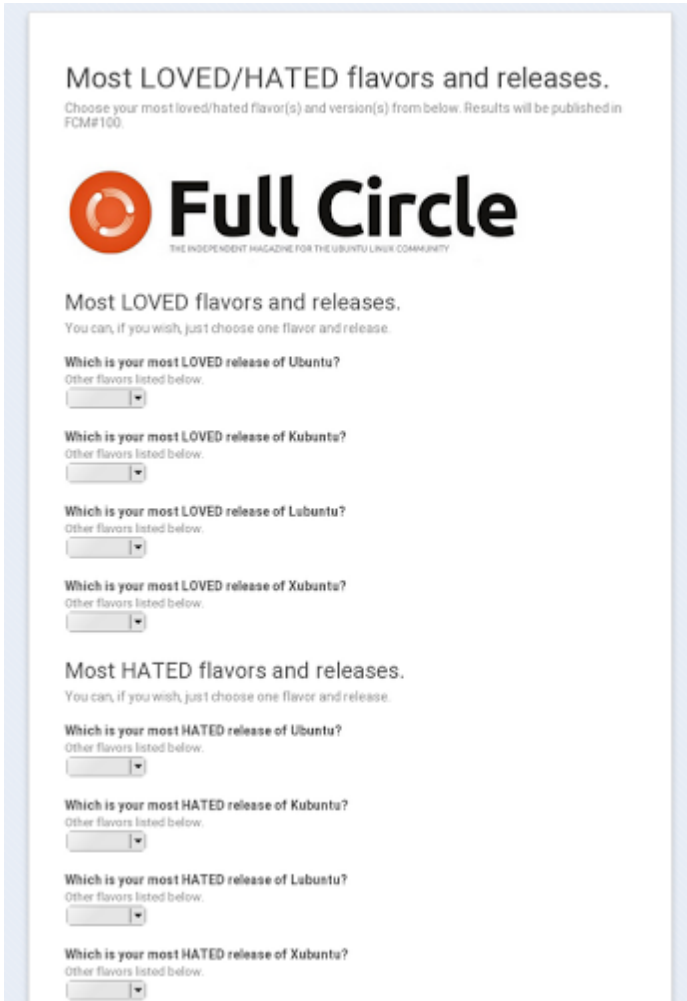
Of course, everything I've just mentioned doesn't include the server and multiplayer modes.

Further info:

http://www.minetest.net/
https://forum.minetest.net/index.php
http://www.minetest.net/texturepacks
http://www.minetest.net/mods

Survey

You can find the survey here



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